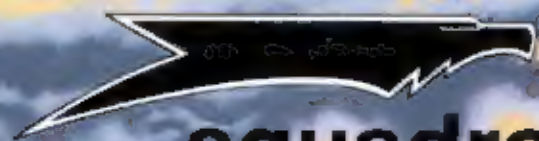


F3H DEMON

in action



Aircraft Number 140
squadron/signal publications

Don Grady

F3H Demon in action

By Jim Mesko

**Color By Don Greer
& Tom Tullis**

Illustrated by Joe Sewell



Aircraft Number 140
squadron/signal publications



A pair of F3H-2 Demons of VF-41/CAG-7 aboard USS INDEPENDENCE (CVA-62) fly over the Mediterranean during the ship's 1959/1960 cruise. The leader carries the Carrier Air Group commander's side number (100) and full CAG markings on the rudder.

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James Obecholtzer	

Dedication:

This book is dedicated to the best pilots in the world, the aviators of the Navy and Marine Corps who fly from their carriers day and night to defend freedom.

A F3H-2M of VF-61 Jolly Rogers, lifts off the port side of the USS SARATOGA (CVA-60) in the Spring of 1957. This aircraft is fitted with the original long Beaver Tail which was later replaced by a shorter tail cone. The single letter identification code on the fin was shortly replaced by a double letter code throughout the Fleet. (McDonnell-Douglas)



Introduction

During World War II aviation technology made tremendous advances, particularly in regard to engine design. The development and employment of jet powered aircraft by Germany and Great Britain in the latter stages of the air war in Europe showed the superiority of these aircraft when compared to propeller driven aircraft. The United States was not far behind in its development, and had deployed a few Lockheed P-80s to Italy for testing under combat conditions.

While the end of the war did lessen the need for new combat aircraft, the advent of jet propulsion radically altered the thinking of the military leaders and aircraft designers. In particular the Navy began to take a very serious look into developing jet aircraft for duty aboard aircraft carriers. A host of companies were involved in this early work, including the St. Louis based McDonnell Aircraft Corporation. McDonnell had been approached by the Navy in mid-1943 to develop the first operational carrier based jet fighter, designated the XFD-1 Phantom. This aircraft first flew in early March of 1945, and successfully met all the performance requirements as set down in the original Navy specification. Unfortunately, advances in engine technology doomed the Phantom to a relatively short operational career. Realizing the shortcomings of the XFD-1, the Navy placed an order with McDonnell for a new fighter, the XF2D-2 Banshee, a month after the initial flight of the Phantom.

When the first Banshee rolled out of the McDonnell plant in December of 1946, the lineage **The McDonnell F2H Banshee (right) was basically a scaled up version of the Navy's first jet fighter the FH-1 Phantom (left).** Both aircraft helped propel McDonnell into the Navy fighter business, but their conventional, straight winged design limited their performance and placed them at a disadvantage against newer, swept-wing aircraft which were just coming into service during the late 1940s. (McDonnell-Douglas)

to the Phantom was obvious. Basically the McDonnell engineers had scaled up the FD-1 to use more powerful Westinghouse J34 engines. The new aircraft proved to be a winner and nearly 900 would be produced, in six different models, before production ceased in late 1953. It served with distinction in the Korean War and remained in the Naval inventory until the early 1960s.

Although the Navy was satisfied with the Banshee, it and other Naval fighters of the late 1940s suffered by comparison with similar Air Force types for a number of reasons. This was due in part to engine performance since Naval aircraft were heavier because of the need to withstand the rigors of carrier landings and the addition of other equipment required for carrier operations. This weight penalty seriously degraded performance and placed Naval aviators at a severe disadvantage against land based aircraft. In addition Naval officials were reluctant to use a swept-wing design to increase performance because they felt it would create serious problems in landing operations due to the higher landing speeds involved. Ironically, the successful Air Force F-86 Sabre evolved out of the Navy FJ-1 straight wing design, although much modified, and this would later serve as the basis for the FJ-2, 3, and 4 Fury, a Naval adaptation of the F-86.

In order to solve these problems the Navy decided to embark on a new fighter program which would place their aircraft on a parity with Air Force fighters. The heart of this program was the Westinghouse J40-WE-8 engine which promised to double the thrust of engines then in service. With this power plant in mind, the Navy issued a letter of intent calling for a high

The XF3H-1 was an attempt by McDonnell and the Navy to design an aircraft which would close the performance gap between carrier and land-based aircraft. When it was first rolled out in early 1951 the sleek, swept-wing aircraft looked unlike anything then in service and promised to be a winner. Unfortunately, its intended power plant was never able to live up to expectations and a different one was substituted which left the plane underpowered during its entire career. (McDonnell-Douglas)



performance carrier based day fighter in the Spring of 1948. McDonnell was one of the six firms which responded to the Navy, with a total of eleven designs being submitted. Eventually the Navy chose the McDonnell design, Model 58, along with the Douglas entry, for development.

The new McDonnell design was a radical departure from the straight winged Phantom and Banshee. The design team, under Richard Deagan, came up with a fighter which incorporated as much aeronautical technology as was possible in their attempt to develop a superior fighter. The single engine was placed in a sleek, pointed fuselage with a swept wing and tail. A clean, aerodynamic shape was emphasized and the mockup was ready for inspection in the Summer of 1948. Officials were basically happy with what they saw, although some revision in the basic design was necessary. This included steps to cut down on weight and better access to the engine. Following these changes, work began on the prototype, now designated the XF3H-1, which was completed in early 1951.

Unfortunately, Westinghouse ran into serious problems with its new engine. Originally the XF3H-1 was to have been equipped with the J40-WE-8, but this was changed to the more powerful J40-WE-10, but neither engine was available to equip the prototype. As a result a non-afterburning, lower powered J40-WE-6 was substituted for flight tests until either the -8 or -10 were ready for installation.

Despite misgivings about this underpowered engine McDonnell engineers began taxi tests with the XF3H-1 in July of 1951. The first flight of the aircraft took place on 7 August 1951 when McDonnell's chief test pilot, Robert Edholm, took off from Lambert Field. Due to the engine problem, however, company officials decided to carry out flight tests over Kansas rather than in St. Louis. This first prototype (BuNo 125444) flew for six months before the second aircraft (BuNo 125445) was ready for testing in January of 1952, equipped with the -6 engine. During flight tests the low power of the -6 became even more obvious. In addition it

The XF3H-1 prototype, now called the Demon, takes to the air from Lambert Field in St. Louis. Early tests showed that the Demon was underpowered, especially since it was forced to use a non-afterburning Westinghouse J40-WE-6 until the anticipated J40-WE-8 was ready. (McDonnell-Douglas)



proved to be unreliable at high altitude and the aircraft's handling characteristics suffered. Reposition of the control surfaces provided some relief, but the main problem continued to be the engine. In August of 1952, one year after the first flight, the J40-WE-8 was finally ready for installation and both prototypes were pulled out of service to be re-engined.

The first flight with the new engine took place during January of 1953 and flight testing began soon afterwards. Even with the new engine the aircraft was still underpowered, and the engine proved to be mechanically unreliable, which resulted in numerous groundings. Despite these problems the XF3H-1, now called the Demon, in keeping with McDonnell's policy of using "spook" type names, proved to handle well except at high altitudes. To solve this problem modifications were made to the wings. Late that summer, the Demon was deemed ready for Carrier Qualification trials, which were conducted on USS CORAL SEA (CVA-43). Aside from the power problem the only major concern was the lack of forward visibility when landing. To solve this, the nose and cockpit would be tilted downward five degrees on production aircraft.

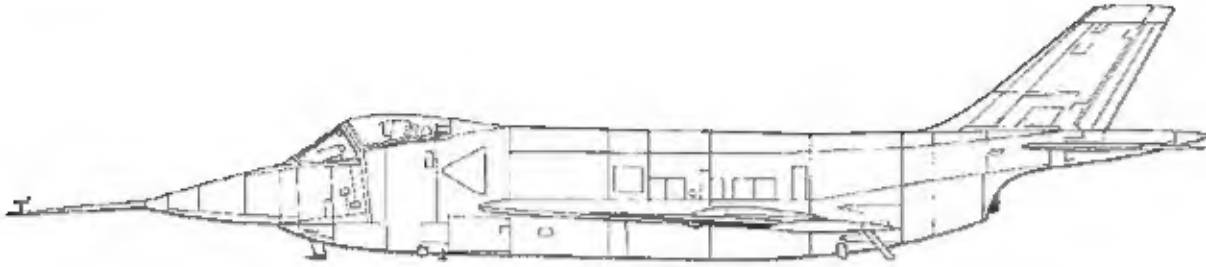
By this time the Navy had changed its requirements and the production versions would differ greatly from the two prototypes. These continued to be used for flight tests but the first XF3H-1 suffered an inflight fuel explosion in March of 1954, resulting in its complete destruction. Following this, it was decided to cancel further tests with the remaining prototype due to safety considerations and a feeling that no additional information could be gained. The second Demon was grounded and within a short period, scrapped.

The second Demon prototype is readied for a catapult launch from the USS CORAL SEA (CVA-43) in late 1953. The tests, while not encouraging, showed that the Demon did have potential. Its most glaring problem was its lack of power. In addition, the view during landing was less than adequate and led to a revised nose on production aircraft. In the background was another aircraft which was also plagued by a lack of power, the Douglas F4D Skyray. (McDonnell-Douglas)

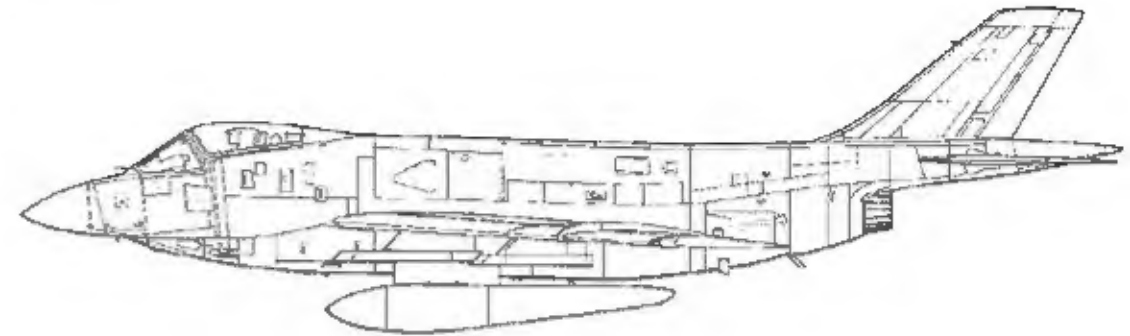


Development

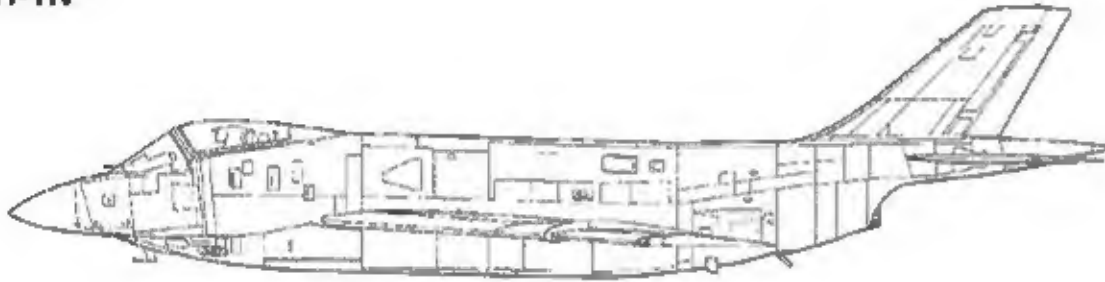
XF3H-1



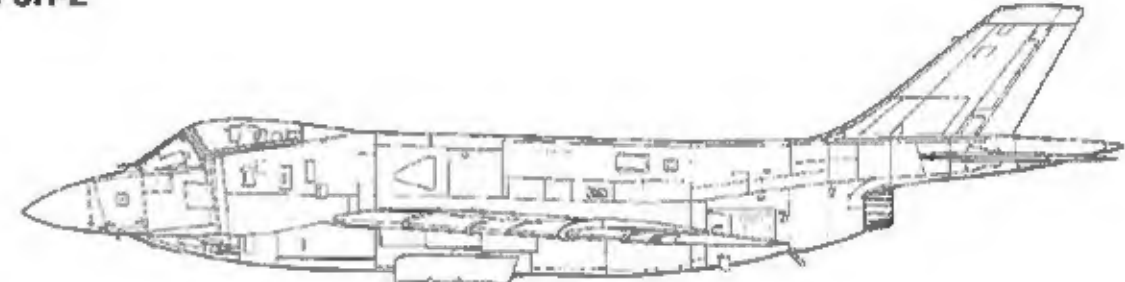
F3H-2M



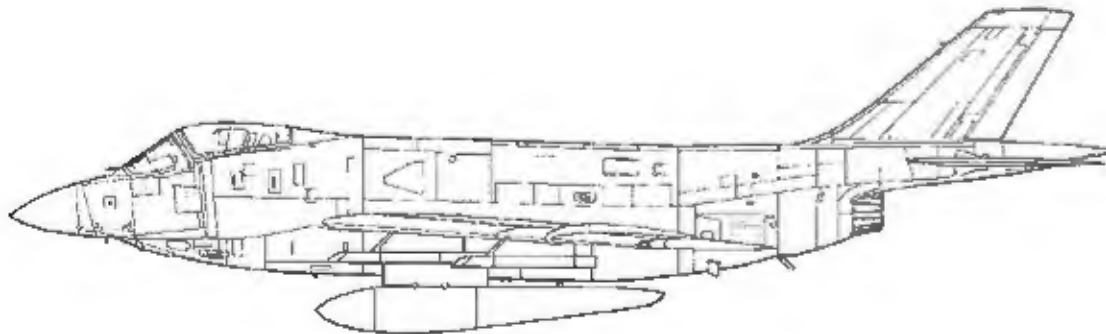
F3H-1N



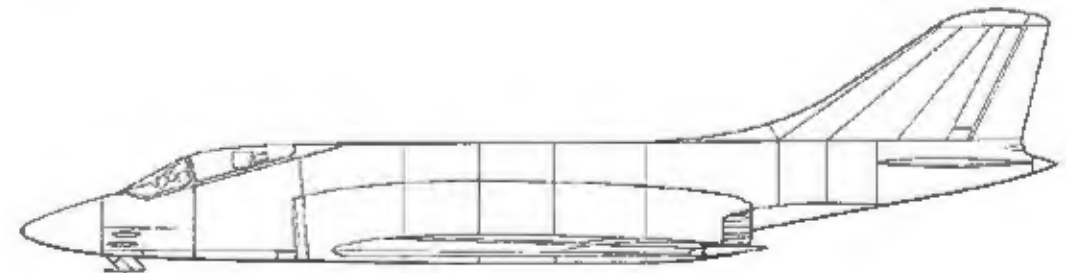
F3H-2



F3H-2N



F3H-G/H



F3H-1N

As originally intended the Demon was to have been a clear weather carrier fighter. When the first XF3H-1 rolled out of the factory in early 1951 it reflected this concept, but the Navy decided to change the aircraft's mission to that of an all-weather interceptor with multi-role capabilities under the designation F3H-1N. Due to engine problems the Navy decided to use the more powerful J40-WE-10 in place of the J40-WE-8, which resulted in a change in the fuselage design along with an increase in weight. Additional weight was added when it was realized that the nose gear needed to be strengthened. The nose itself was also enlarged to handle the larger Westinghouse APD-50 radar which gave the Demon its all-weather capability. The redesigned Demon also replaced the manually folding wings with hydraulically operated ones because of problems with the manual wing fold gear.

The results of all these changes was a large rise in overall weight which translated into a need for more power, which in turn required more fuel. The only way this could be accomplished was to enlarge the fuselage for additional fuel storage which changed the original sleek design. As a result, the new aircraft took on a more portly profile. Due to the Korean War the Navy decided to place an order for the new aircraft even though testing on the prototype was not yet completed. In addition, the production engine was not, as yet, fully proven. In March of 1951 McDonnell received a contract for 150 aircraft, while an additional order for

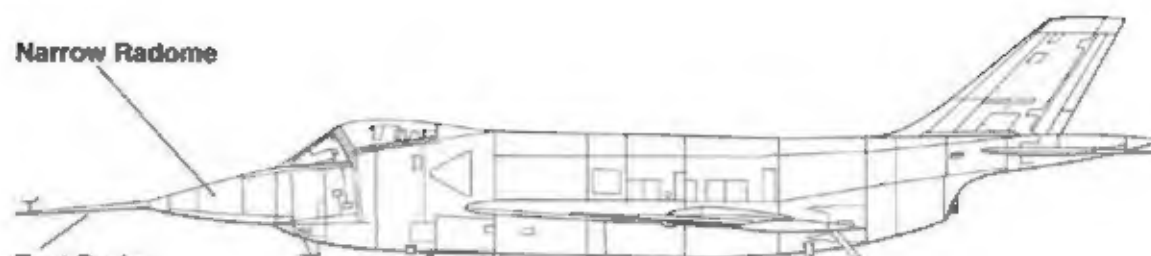
The F3H-1N was a big aircraft for its day, having dimensions very close to that of a later McDonnell design, the F4 Phantom. The drastic difference between the XF3H-1 and the first F3H-1N was the result of a mission change by the Navy and the need for a bigger engine and more fuel. As a result, the sleek look of the original Demon gave way to a more portly and less angular looking aircraft. (McDonnell-Douglas)

Fuselage Development

XF3H-1

Narrow Radome

Test Probe

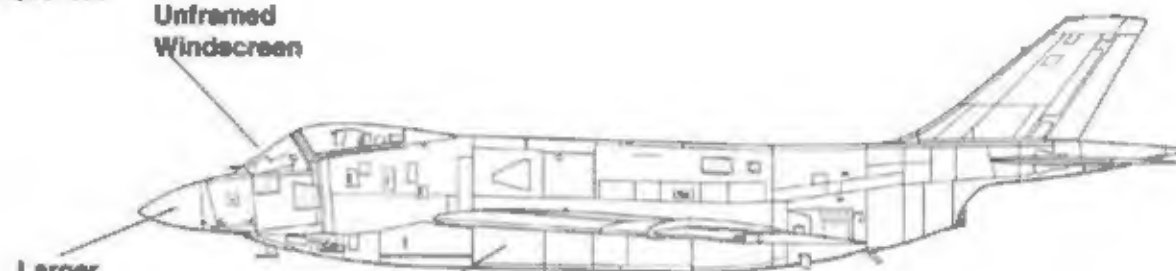


F3H-1N

Unframed Windscreen

Larger Radome

Deeper Fuselage



100 planes was placed with Goodyear, although eventually this order would be transferred to Temco.

Continual problems with the Westinghouse engine resulted in additional delays and it was not until 24 December 1953 that the first production aircraft made its initial flight. Almost from the beginning, problems arose with the J40 power plant which seriously threatened the Demon program. Underpowered from the start, the J40 also proved to be unreliable. Shortly after the loss of the first XF3H-1 prototype in March of 1954, a F3H-1N was lost following an engine failure. Problems with the engines resulted in a series of groundings for the Demon, but despite intensive efforts to rectify the problems, Demon's continued to crash or suffer major engine failures on a regular basis. As a result, the Demon program came under increasing scrutiny by the Navy. By the Summer of 1955 six F3H-1Ns had been lost in accidents, which led the Navy to permanently ground the aircraft and not place it in service. By this time fifty-six F3H-1Ns had been completed and of the fifty which remained, twenty-one were slated to become instructional airframes at training bases while the remaining twenty-nine were re-engined with the Allison J71-A2 power plant in place of the Westinghouse J40.

In retrospect the failure of this initial version of the Demon could be traced to a number of critical areas. Without a doubt, the failure of the engine in terms of power output and reliability was the main reason for the F3H-1N's problems. As a result of this situation, Westinghouse terminated its J40 program and got out of the engine manufacturing business. In addition, the onset of the Korean War created an immediate need for the Demon to get into service as quickly as possible. This led to the F3H being rushed into service before the prototype. The prototype F3H-1N takes off from Lambert Field in St. Louis on 31 December 1953 with a McDonnell F2H Banshee acting as chase plane. The Demon followed the Banshee off McDonnell's design boards and was a tremendous step forward for the new company. (McDonnell-Douglas)



The F3H-1N had a radical look when compared to other fighters then in service. Its swept back wings and tail, large intake, and huge canopy combined to give it a sinister appearance which McDonnell and the Navy hoped to translate into a premier fighter capable of besting contemporary shore-based aircraft. (McDonnell-Douglas)





The Demon looked fast, but the Westinghouse J40 never lived up to its expectations and the F3H-1N was decidedly underpowered and unreliable. Although the big fighter handled fairly well, the lack of an engine with adequate power seriously hindered its overall performance. (McDonnell-Douglas)

types had been completely tested and all the problems worked out. Finally, the Demon was a tremendous step forward in terms of Navy fighter development and as such pioneered new ground. This ambitious program suffered in part due to the very advances the aircraft sought to achieve since it tried to achieve so much so fast. Had the development time been longer and had the original engine been ready when it was supposed to have been, and achieved its power output, many of the Demon's early problems would never have occurred. When coupled with the aircraft's change in mission during its initial design and construction it is remarkable that the F3H was eventually able to get into production and service.



Ground crewmen hook up the prototype F3H-1N to a starting cart prior to a test flight. Visibility from the cockpit was exceptional due to the huge canopy but problems with the one piece windscreen eventually led to the single piece windscreen being redesigned. The overall height of the cockpit off the ground was unusual and a definite change from earlier McDonnell designs. (McDonnell-Douglas)

The first F3H-1N makes a low level pass during the initial test stages. Eventually it was decided to re-engine some of the early F3H-1Ns with the Allison J71 power plant due to the disappointing performance of the Westinghouse J40. (McDonnell-Douglas)





Following the loss of six F3H-1Ns the Navy decided to ground the aircraft and cease production. Of the fifty left, twenty-one were to be used as instructional airframes while the remainder were re-engined with the Allison J71. A group of F3H-1Ns sit outside the McDonnell factory after the grounding order. Newer F3H-2Ns in the Gray and White camouflage pattern are on the ramp behind the Navy Blue F3H-1Ns. (McDonnell-Douglas)



Sitting forlorn by a railroad siding, a group of F3H-1N Demons await their fate as a tractor prepares to take them away. None of these aircraft ever saw active service and after the grounding order none were ever flown again. (McDonnell-Douglas)

These brand new F3H-1Ns are being towed outside the McDonnell factory for transportation to various Navy training facilities where they were to serve as instructional airframes for mechanics. The disposal of these expensive aircraft in such a matter led to a Congressional investigation of the F3H program. (McDonnell-Douglas)





This Demon was on display for what appears to be an open house type airshow, possibly at Dayton. The F3H-1N carried its own starter cart with it, which is visible under the fuselage, and the cart carried the aircraft's serial number on it in white. (Bowers via Sullivan)

This Demon is on a barge ready for the trip to the training facility, a sad end to a fighter which had started out with high hopes. The failure of the power plant to achieve its expected power doomed the F3H-1Ns to their role as training aids. Had a more powerful engine been available the F3H-1N would have become operational. (McDonnell-Douglas)



A Demon is hoisted up for loading onto a barge for the trip to a training facility. Even the flyable F3H-1N Demons which were in operation were ordered barged to their destinations rather than take a chance on flying them with the inherent risk of more engine failures and crashes. (McDonnell-Douglas)



F3H-2N

The problems which arose from the Westinghouse engines early in the Demon program caused the McDonnell design team to look for another power plant to replace the J40. Although initially the Navy felt that this was not needed, when the J40-WE-8 failed to live up to expectations, it came around to McDonnell's point of view. R. J. Baldwin, now in charge of the program at McDonnell, selected the Allison J71 as a possible alternative to the J40. In early 1954 four production line aircraft were modified to take the Allison engine. Two of these served as J71 powered F3H-1N test aircraft, while the other two were used as prototypes for the next production version, designated the F3H-2N.

The first flight of the Allison equipped F3H-2N took place on 11 January 1955. The difference between the F3H-1Ns fitted with the J40 and the Allison equipped F3H-2Ns was substantial. While the J71 was not trouble-free, it was a tremendous improvement over the unreliable and underpowered Westinghouse engine. The increase in high altitude performance, in particular, was impressive. Additionally, there were a number of other significant changes between the F3H-1N and the F3H-2N. Early models of the F3H-2N had a one-piece windscreen but early in the production this was changed to a more conventional three-piece design during February of 1955, shortly after the loss of the first F3H-2N prototype. There was evidence that this loss was due to the failure of the windscreen and it was decided to switch to the stronger three-piece type. Early aircraft were eventually retrofitted with the newer design windscreen.

One of the early problems with both the XF3H-1, and the F3H-1N was the increase in overall weight which further degraded the aircraft's performance since the original engines were already underpowered. In order to compensate for the increase in overall weight, the wing area was increased by 17.5 percent. This was done by extending the trailing edge of the wing root forty inches, then extending the trailing edge of the wing out to the wing tip. This helped offset some loss in performance due to the weight gain, and improved the aircraft's overall handling characteristics.

Another problem which surfaced early in the F3H-2Ns career was wing warpage which resulted when a pilot put the aircraft through a high speed roll maneuver. This warpage then affected the overall aircraft's performance and could only be corrected by the pilot applying aileron adjustment, resulting in additional drag and loss of fuel due to the compensation. While the easiest solution would have been to beef up the wing structure, this would have led to a major increase in weight for the already underpowered Demon. Instead, it was decided during 1956, to add wing spoilers to the upper wings which spread the stress out over a large area of the wing. This solved the wing warp problem and helped the aircraft's roll rate at high speeds.

The F3H-2N also received several modifications internally at the factory and in service to improve its performance. Initially the Demon had been equipped with the Westinghouse APD-50 all-weather radar. This was later changed to the Hughes APQG-51 which offered better acquisition capabilities. The original armament of the aircraft was four 20MM cannons which were located below and behind the intakes. Due to their weight, two of these guns were often removed to increase performance. In addition it was discovered that when the guns were fired at high altitude, the ingestion of gun gases caused the engines to stall. Eventually, when missiles became an integral part of its armament, squadrons often removed all four guns and relied solely on missiles for armament. On early models the cannons were

supplemented by Mighty Mouse folding fin aircraft rockets (FFARS) which were carried on the four underwing hardpoints. These unguided rockets relied on the volley effect, saturating the target area with a lethal stream of missiles, any one of which could destroy or disable an enemy aircraft. In 1956 these were replaced with the early AAM-N-7 Sidewinder infrared guided (heat seeking) air-to-air guided missiles.

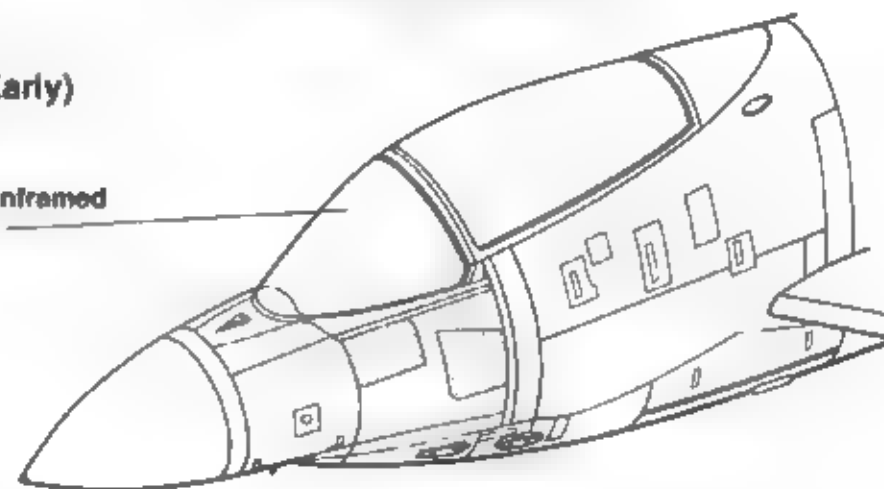
One of the more serious problems which plagued the Demon during its early service was flame-outs in rainy weather or under marginal weather conditions, a serious impediment for an all weather fighter. Eventually, it was found that the turbine blades were rubbing on the engine casing, resulting in the problem. To solve the problem, the blades were milled down a small amount which rectified the problem and allowed the Demon to operate in all types of weather.

Externally, aside from the increase in wing area and the change in windscreens there were relatively few changes in the Demon's external configuration. A removable refueling probe was fitted to the right side of the fuselage just behind the pilot for in flight refueling. Various underwing racks were fitted for ordnance and external fuel tanks. It was found that the addition of external tanks did not help increase range endurance due to their drag and, in fact, reduced it. As a result, external tanks were not popular and saw only limited use. In 1957, the last significant outward change for the Demon occurred when the original flat topped "heaver tail" was shortened and tapered. In 1962, under the new Department of Defense aircraft designation system, the F3H-2N became the F-3C.

Canopy Development

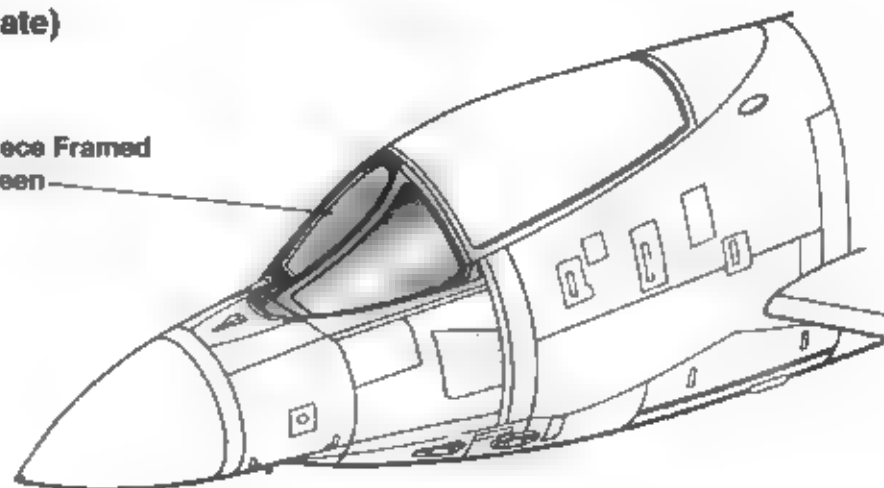
F3H-1N
F3H-2N (Early)

One-Piece Unframed
Windscreen



F3H-2N (Late)

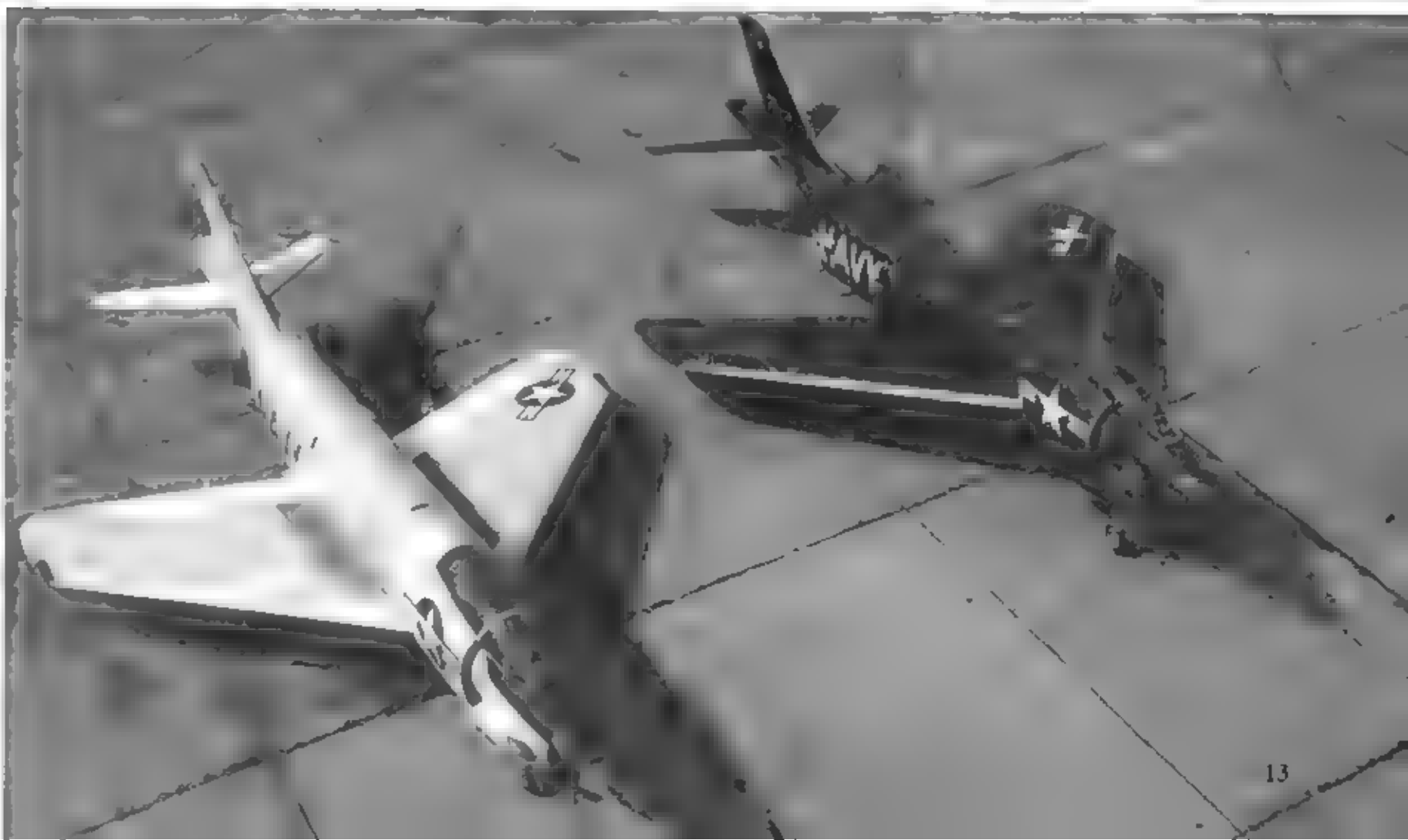
Three-Piece Framed
Windscreen

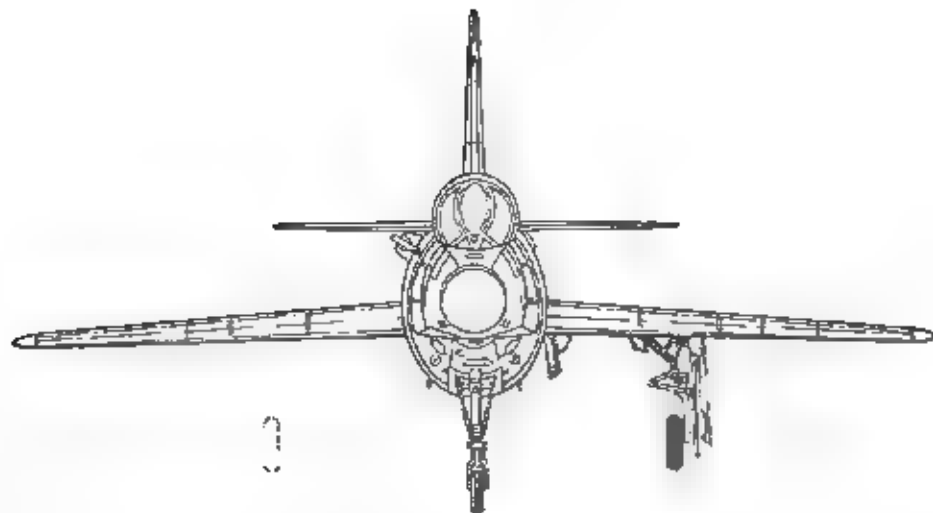




The first production F3H-2N sits on the flight line prior to a test hop. From this angle on the ground, the visibility through the one piece windscreen is apparent. The cages on the intake and fuselage side are to keep out debris during start up which could be ingested by the engine and cause serious damage to the turbine blades. Early aircraft used for flight tests carried a large test probe on the nose. (McDonnell-Douglas)

Due to the problems with the early -1N Demon design, the decision was made to substitute the more reliable and powerful Allison J71. To help improve performance due to the weight gain caused by the various modifications, the wing area was increased by 17.5 percent by extending the trailing edge of the wing back forty inches, then extending it out to the wing tip. This helped to increase performance and handling which had deteriorated sharply due to the increase in weight. The difference in the wing area can easily be seen between the Gray F3H -2N and Blue F3H -1N. Both are fitted with the one piece front windscreen which was later deleted when the original F3H-2N prototype was lost when the windscreen disintegrated in flight. (McDonnell-Douglas)

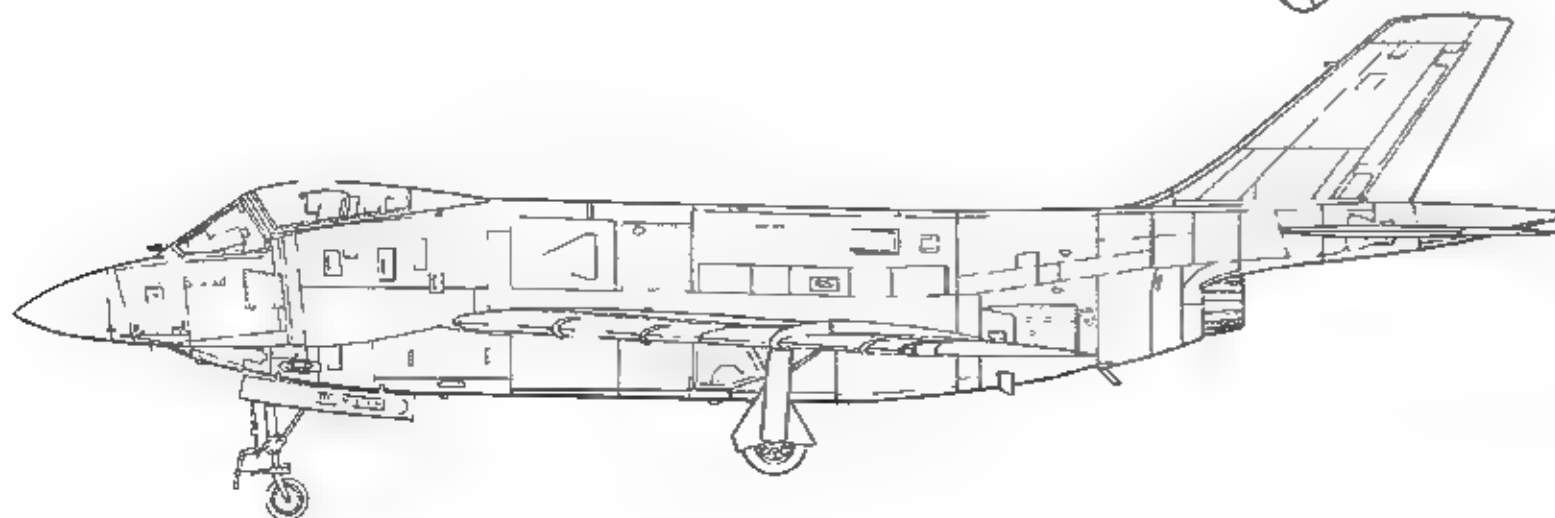
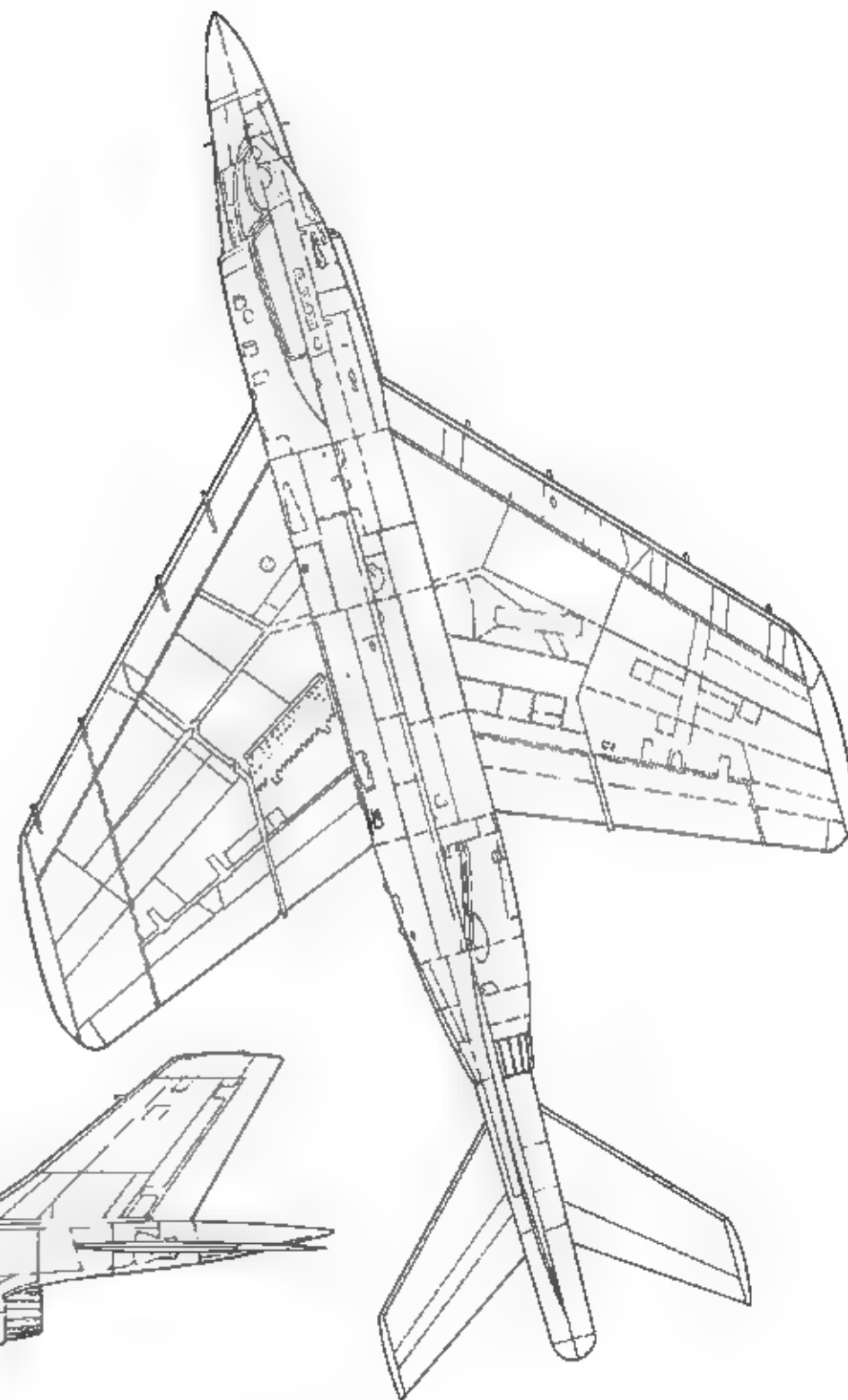




Specification

McDonnell F3H-2N Demon

Wingspan	35 feet 4 inches (10.67 m)
Length	58 feet 11 5 inches (17.98 m)
Height	14 feet 6.6 inches (4.42 m)
Empty Weight	21,187 pounds (9,655 kg)
Maximum Weight	39,000 pounds (17,690 kg)
Powerplant	One 11,000 lbf Allison J71-A-2b turbojet engine
Armament	Four 20mm cannon
Speed	647 mph (1,041.2 kph)
Service Ceiling	42,650 feet (13,000 m)
Range	1,370 miles (2,205 km)
Crew	One





The first flight of the F3H-2N took place in February of 1955. The new J71 engine gave a tremendous boost in performance to the Demon over the old J40 and while the J71 did have problems, they were nothing like those experienced with the Westinghouse power plant. The triangular shaped object on the fuselage is the auxiliary air intake door (McDonnell-Douglas)

With the more powerful Allison J71 engine, maneuverability was improved and the aircraft achieved higher speeds, an improved rate of climb and a higher ceiling. All areas of performance increased over the earlier F2H-1N. (McDonnell-Douglas)



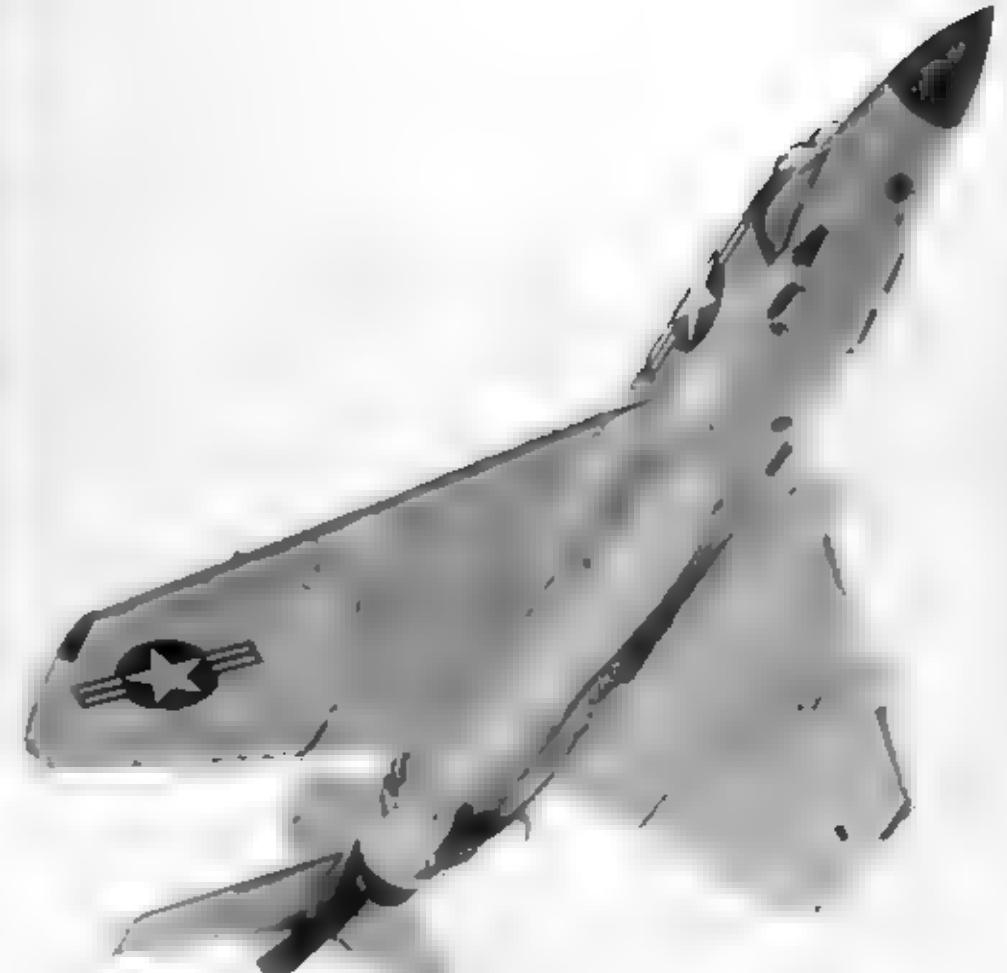
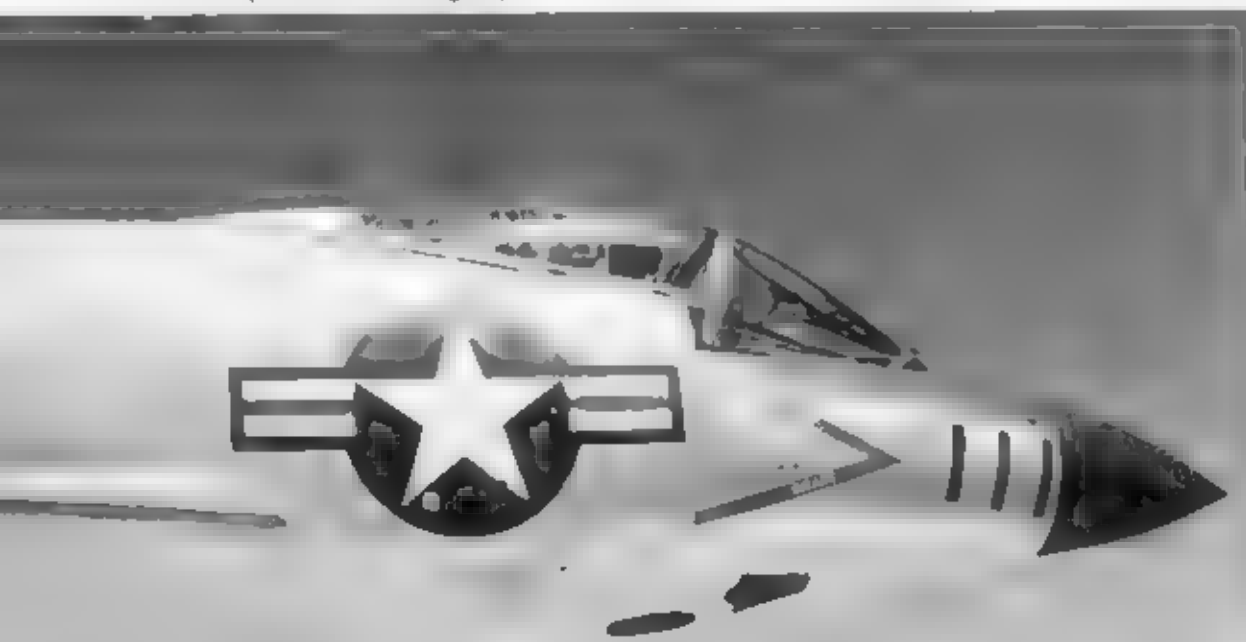
While the F3H-2N was portly looking while on the ground, in the air it looked far sleeker. This F3H-2N is a test aircraft and carries a long test probe on the nose. The aircraft is an early production F3H-2N with the single-piece windscreen. (McDonnell-Douglas)





During the initial test program the first aircraft was lost in an accident and although there was never a satisfactory explanation, it was suspected that the single piece windscreen failed. As a result McDonnell reverted to a three piece design on a later production aircraft. This aircraft was also equipped with wing spoilers which were added to compensate for wing warpage during high speed turns and rolls. (McDonnell-Douglas)

The Demon was armed with four 20mm cannon which were mounted in pairs under the air intakes. Unfortunately, firing the guns at high altitude while turning often led to an engine flameout. Throughout the Demon's career this problem was never satisfactorily solved. (McDonnell-Douglas)

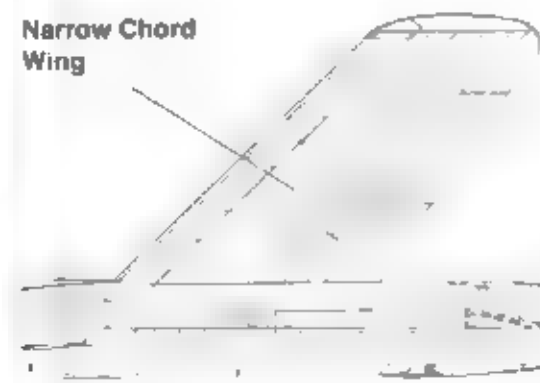


The F3H-2N could carry a wide variety of ordnance, such as the four 2.75 inch rocket pods on the wing pylons and two fuel tanks on the underfuselage pylons. It was found, however, that the drag caused by both tanks actually decreased the range as opposed to when the aircraft was only fitted with a single tank and it was not uncommon to see Demons fitted with a single tank on one of the fuselage stations. (McDonnell-Douglas)

Wing Development

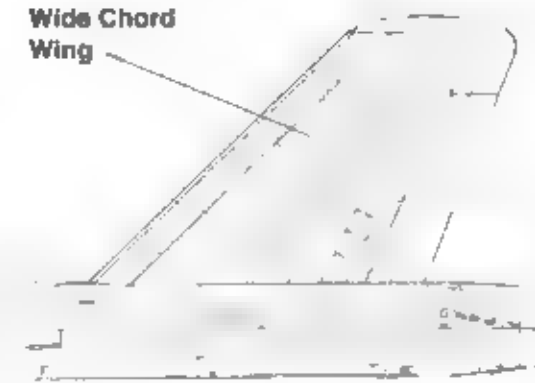
F3H-1N

Narrow Chord Wing



F3H-2N

Wide Chord Wing





Carrier qualifications for the F3H-2N were conducted on board USS TICONDEROGA (CVA-14) during the second week of September, 1955. This F3H-2N (BuNo 33559) was used for these tests and nearly two dozen landings and takeoffs were conducted along with deck handling and stowage evaluations. Deck hands look over the new aircraft on the port deck edge elevator of the "TICO" which was still equipped with a Teak wood flight deck. (McDonnell-Douglas)

Final preparations are made just prior to a catapult shot from USS TICONDEROGA during the F3H-2N's carrier trials. Only a few minor problems cropped up during these initial tests and these were easily remedied at the factory. The tests were conducted by VX-3. (McDonnell-Douglas)



With the new J71 power plant the level top speed of the aircraft rose substantially. When the pilot selected full afterburner the engine would often produce a series of flaming balls behind the tail. This was the result of the heating of air waves to incandescence level which made for a very interesting light display, especially at night. (McDonnell-Douglas)





With the apparent problems of the Demon solved, the Navy and McDonnell geared up for full production. Early production F3H-2Ns are being assembled at the McDonnell St. Louis facility during 1956. None have been fitted with wing spoilers and the three digit number on the tail were production reference numbers. (McDonnell-Douglas)

The 1950s saw a great deal of innovation in the American aeronautical industry and McDonnell was one of the leaders. With the apparent bugs worked out of the F3H, things began to look up and the firm put a Demon on display with another new design the XV-1 Convertaplane. Unlike the Demon, the XV-1 did not progress beyond the prototype stage. (McDonnell-Douglas)



Workmen carry out a multitude of tasks on this Demon prior to the fitting of the J71 power plant. The size of the engine compartment can be gauged by the worker riveting panels in the tail. Due to its height the Demon was not an easy aircraft for ground crews to work on. (McDonnell-Douglas)





Later production aircraft had spoilers added to the wings just in front of the inboard flaps to prevent wing warpage. The F3H-2N had a large cockpit as can be seen from the worker in the cockpit. The coverings on the canopy were to protect it from scratches during the assembly process. (McDonnell-Douglas)



The McDonnell production line was a busy place during this time as they were also into production of the twin engine F-101 Voodoo for the Air Force. There was a certain amount of similarity in the general lines of both aircraft. (McDonnell-Douglas)

McDonnell also designed a buddy refueling kit where one Demon could refuel another while in flight. Though common practice today, at the time, aerial refueling was still in its infancy and this buddy system was rather novel. The system is shown here during a press open house at the Lambert Field facility. (McDonnell-Douglas)





The buddy refueling system worked reasonably well in practice and involved one aircraft carrying a tank with a refueling hose. The other aircraft inserted its probe into the drogue at the end of the hose and fuel was then transferred. The Navy; however, decided against purchasing the McDonnell system. (McDonnell-Douglas)

Despite its earlier Carrier Qualifications Trials on the TICONDEROGA, the Demon took part in further tests aboard the new super carrier USS FORRESTAL (CVA 59) during the ship's early shakedown cruise. Many of the Navy's newest jets took part and the Demon shared the flight deck with an early production Grumman F11F Tiger with the original short nose. (McDonnell-Douglas)

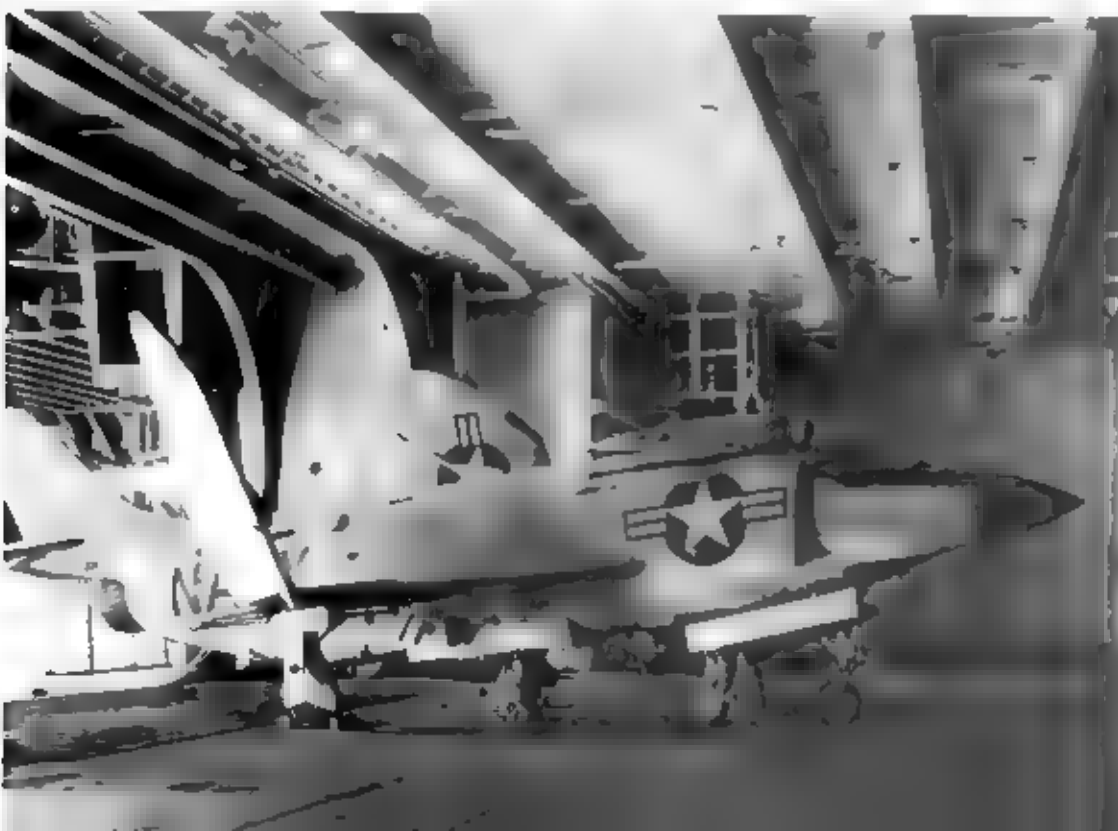
Crewmen on the USS FORRESTAL hook a Demon up to the catapult bridle for a catapult shot. The cannon ports have been faired over on this F3H indicating that no armament has been fitted. The aircraft behind the tow tractor is one of the prototype Douglas A4D Skyhawks. Years later these two giants of the aviation industry would merge to become McDonnell-Douglas. (McDonnell-Douglas)





An F3H-2N Demon lifts off the port waist catapult of the USS FORRESTAL (CVA-59). No problems were encountered during these deck tests which could not be easily corrected at the factory. (McDonnell-Douglas)

Even as big an aircraft as the F3H could easily fit inside the spacious hangar deck of the new FORRESTAL Class super carriers. McDonnell employees and Navy personnel prepare this Demon for a ride up the deck edge elevator of USS FORRESTAL. The crewman in the cockpit is the safety man and rides the brakes to keep the aircraft from rolling off the elevator. (McDonnell-Douglas)



The Demon had originally been designed to help the Navy overcome a situation which arose during the Korean War when it found itself at a disadvantage when confronting Russian swept wing land based aircraft. In an attempt to quickly alleviate the problem the Navy decided to navalize the Air Force F-86 which resulted in the FJ Fury series. The F3H was designed to be far superior to its land-based contemporaries, but it never lived up to its expectations due to the engine problems. Both aircraft took part in the shake-down work on the USS FORRESTAL. The large size of the new super carriers and more powerful catapults were designed specifically to handle jet aircraft. (McDonnell-Douglas)



F3H-2M

When the Navy changed the mission requirements for the F3H, one of the jobs envisioned for the Demon was that of a fleet air defense missile interceptor. Designated the F3H-2M (M for missile) this variant of the Demon was developed in parallel to the F3H-2N. Initially this model was to be equipped with the AAM-N-2 Sparrow I which was a new beam riding radar guided air-to-air missile. Aside from the associated launch equipment and wiring, the F3H-2M carried a modified radar unit, the APG-51B, to handle the large missile. Eventually, however, it was decided to switch from the Sparrow I to the Sparrow III which used a semi-active radar homing system which was far more effective than the earlier missile.

In addition to the Sparrows, the F3H-2M could also carry the AM N-7 Sidewinder like the earlier F3H-2N. Though the F3H-2M could carry up to four Sparrows, it was more common for them to carry two Sparrows and two Sidewinders to allow the aircraft the ability to deal with a variety of threats. In some cases, two of the four internal 20MM cannon were deleted to save weight and improve performance. In some situations, all four guns were removed when the only mission planned for the fighter was long range fleet air defense.

The first flight of the F3H-2M took place in the late Summer of 1955, with flight and armament testing beginning in late fall. It would be almost a year, however, until the F3H-2M went into service with front line units. Once it began to be phased in, the F3H-2M became the mainstay of fleet defense units until replaced by the very aircraft it helped sire, the McDonnell F-4H Phantom. In 1962 under the DOD revised designation system the F3H-2M became the MF-3B.



Developed parallel to the F3H-2N, the F3H-2M was to be the main Fleet long range air defense missile armed fighter. The prototype first flew in the Summer of 1955 but problems with the missile system kept the aircraft out of first line service for nearly a year until the problems could all be worked out. (McDonnell-Douglas)

The Demon could carry four of the big Sparrow air-to-air missiles and often had two of its internal cannon removed to help reduce weight. When assigned solely to long range Fleet air defense, some squadrons removed all the guns. This particular aircraft is from the forth production run of F3H-2Ms. (McDonnell-Douglas)



Air-To-Air Missiles

Sparrow I



Sparrow III



Sidewinder

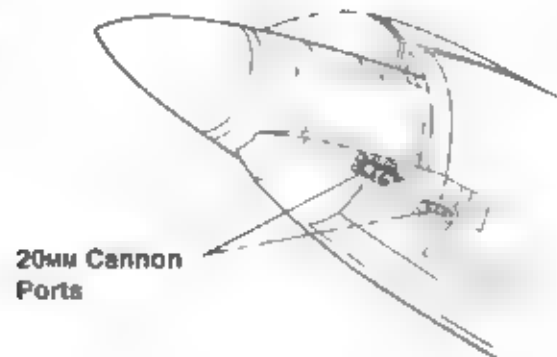


(Right) The F3H-2M was originally designed to carry the Sparrow I but eventually it was decided to switch to the improved Sparrow III which had a semi-active radar homing system unlike the Sparrow I. The first production F3H-2M prepares to take off with four of the early Sparrow I missiles on its four underwing missile launch rails. (McDonnell-Douglas)



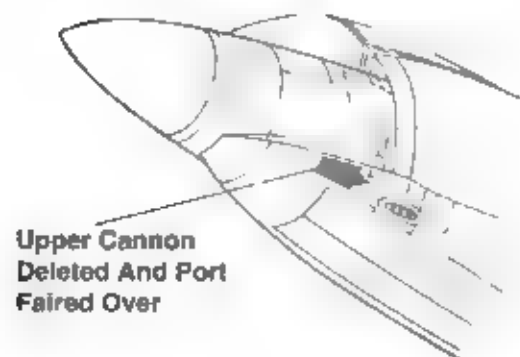
Cannon Armament Options

F 3H-1N/2N



20mm Cannon
Ports

F3H-2M



Upper Cannon
Deleted And Port
Faired Over

Since the Sparrow III was far superior to the early Sparrow I it quickly superseded it in service. The Sparrow III could be recognized by its more rounded nose as opposed to the sharply pointed one of the Sparrow I. This banking Demon reveals the four underwing missile pylons and their launch rails and has the lower cannon deleted. (McDonnell-Douglas)





Since the differences between the F3H variants were relatively minor they were produced at the same time on the McDonnell production line. In the foreground is a F3H-2M while behind it is a F3H-2N. To the right are F-101 Voodoos in various stages of assembly. (McDonnell-Douglas)

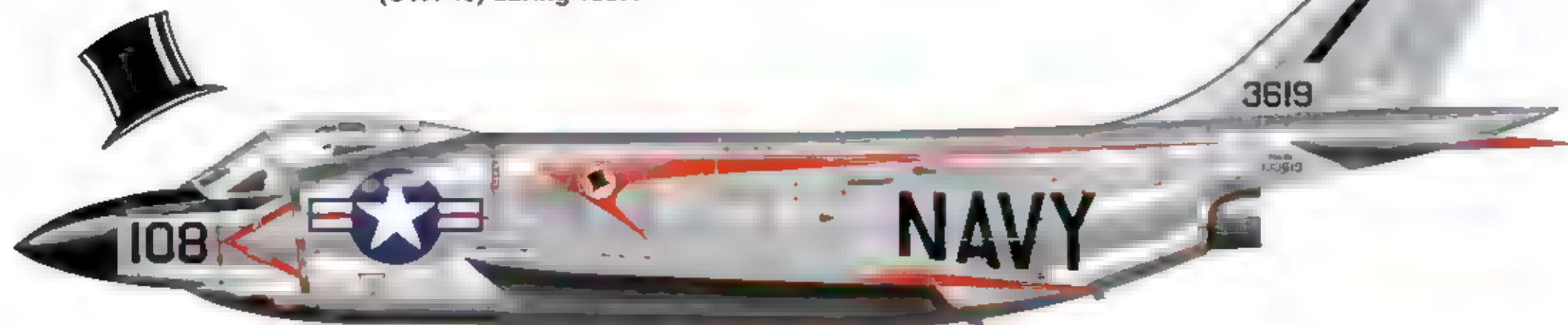
While the Demon could normally carry four of either the Sparrow or Sidewinder missiles it was normal practice to carry a mixed load of two Sidewinders and two Sparrows which gave the fighter more flexibility to combat any aerial threat. In this sense the F3H was a significant step forward in Fleet Air Defense. (McDonnell-Douglas)



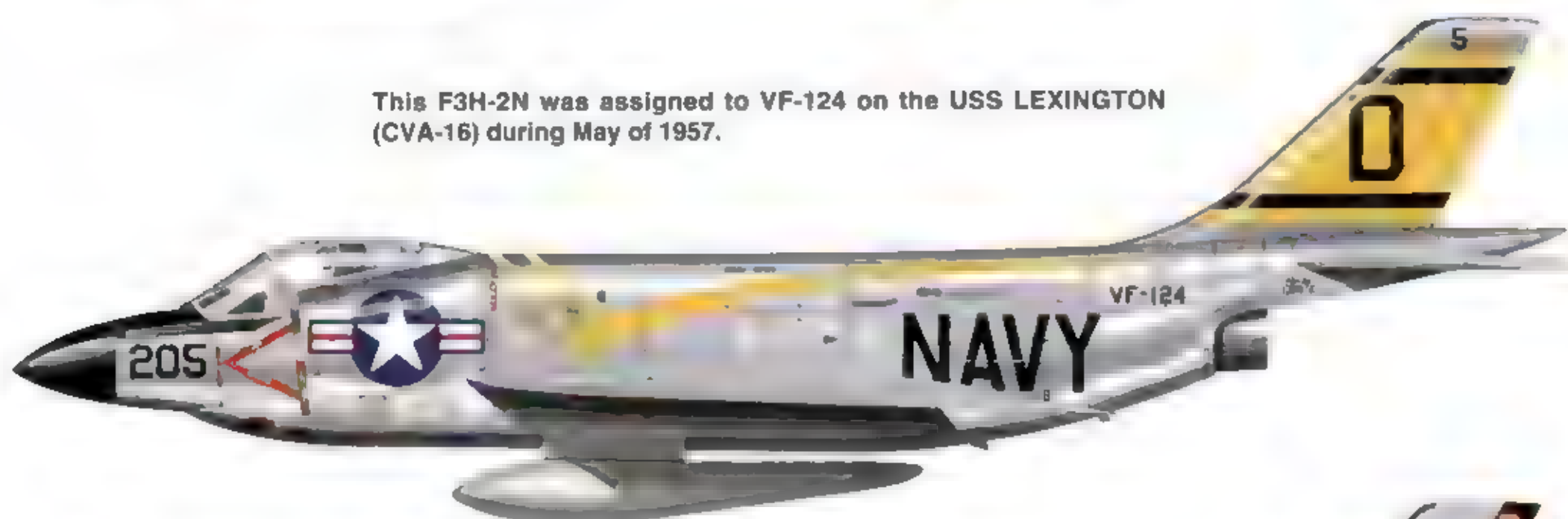
The F3H -2M could also carry the new Sidewinder Infrared guided missile which was just coming into service with the Navy and Air Force. This particular aircraft belonged to VF-114, the Aardvarks on USS SHANGRI-LA (CVA-38) during late 1958. This unit would later be the first Pacific squadron to take delivery of the F-4B Phantom. (Grajek via Squadron Signal)



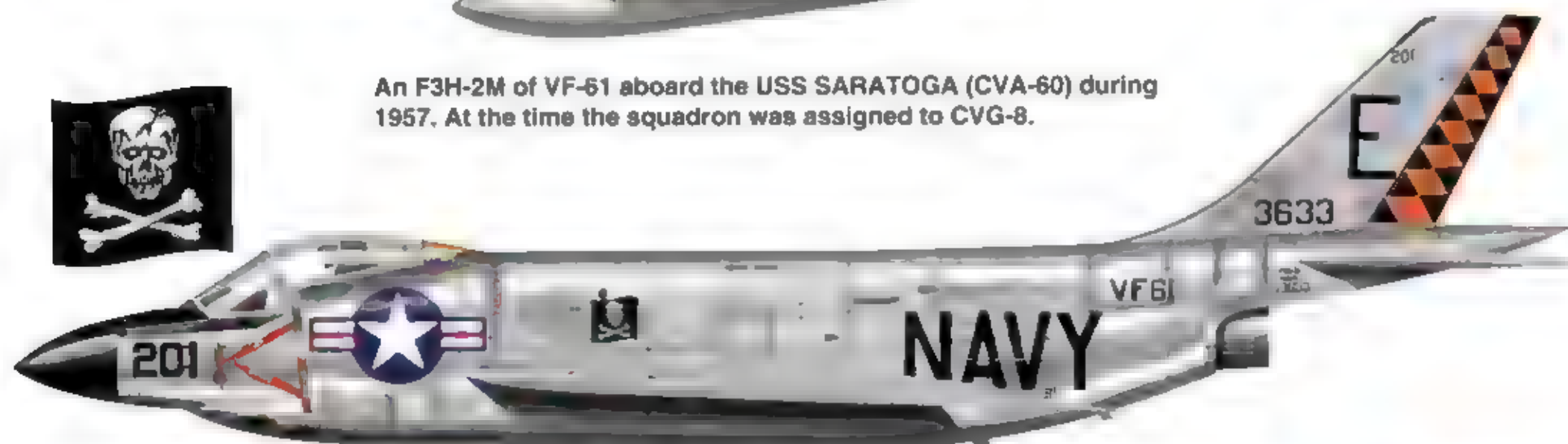
An F3H-2N of VF-14 aboard USS FRANKLIN D.ROOSEVELT (CVA-43) during 1957.



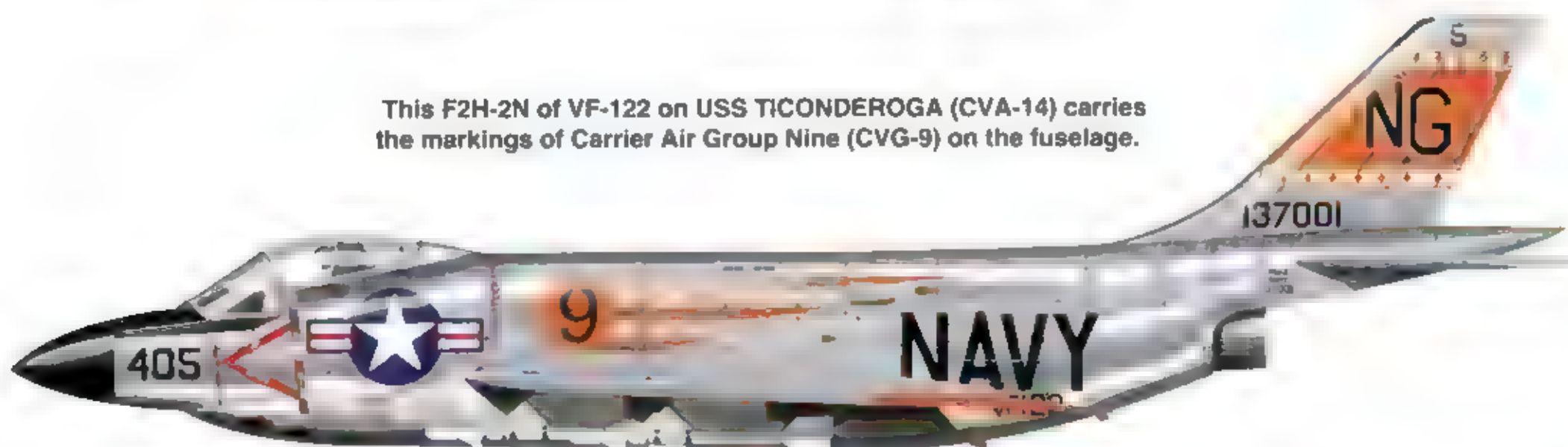
This F3H-2N was assigned to VF-124 on the USS LEXINGTON (CVA-16) during May of 1957.



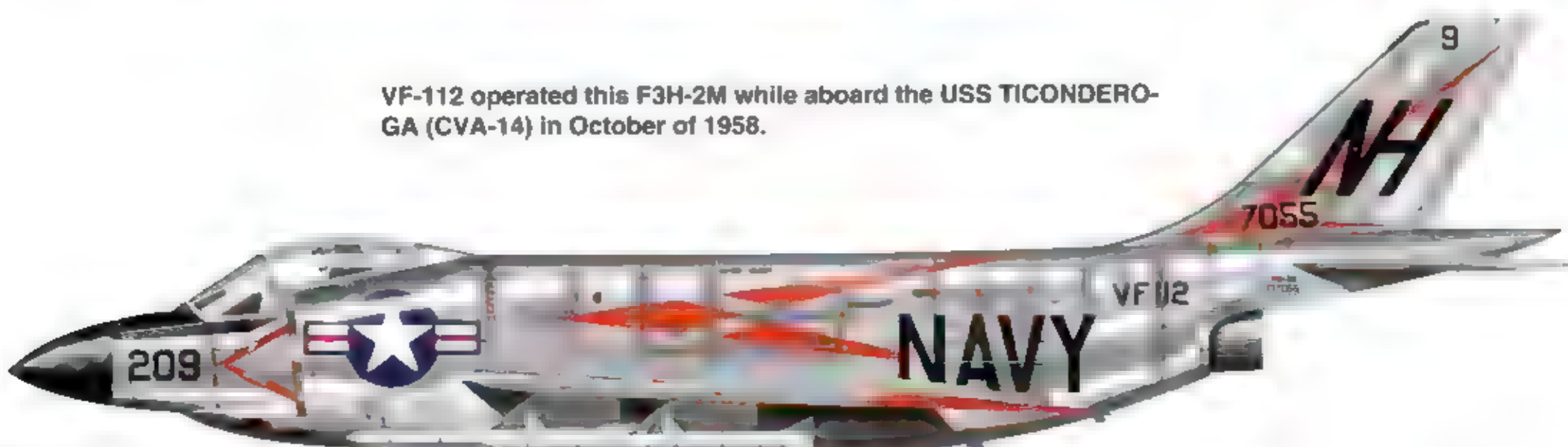
An F3H-2M of VF-61 aboard the USS SARATOGA (CVA-60) during 1957. At the time the squadron was assigned to CVG-8.



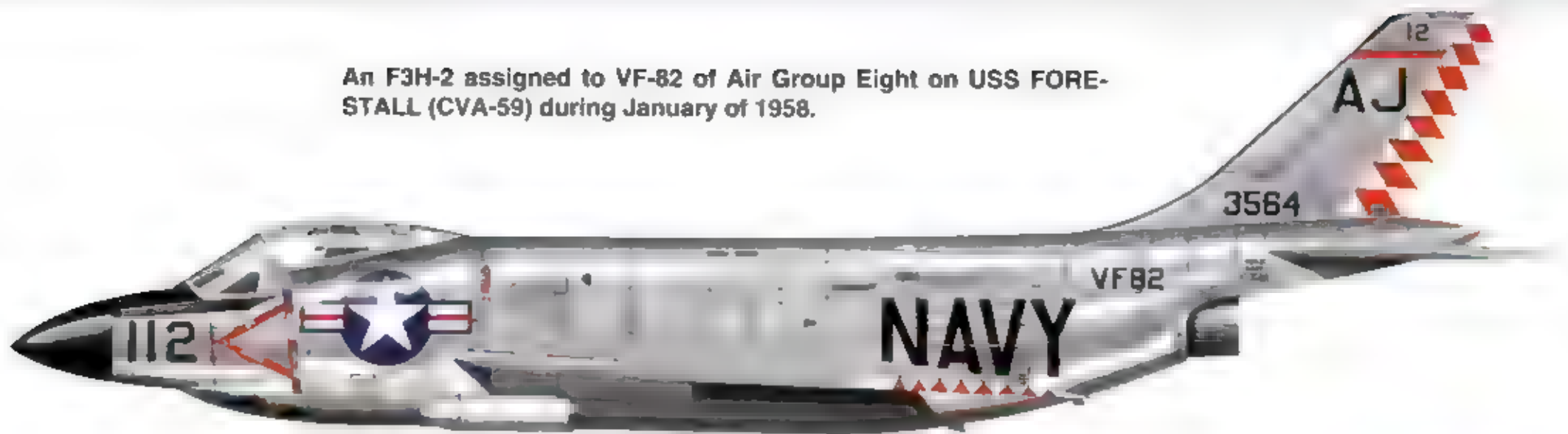
This F2H-2N of VF-122 on USS TICONDEROGA (CVA-14) carries the markings of Carrier Air Group Nine (CVG-9) on the fuselage.



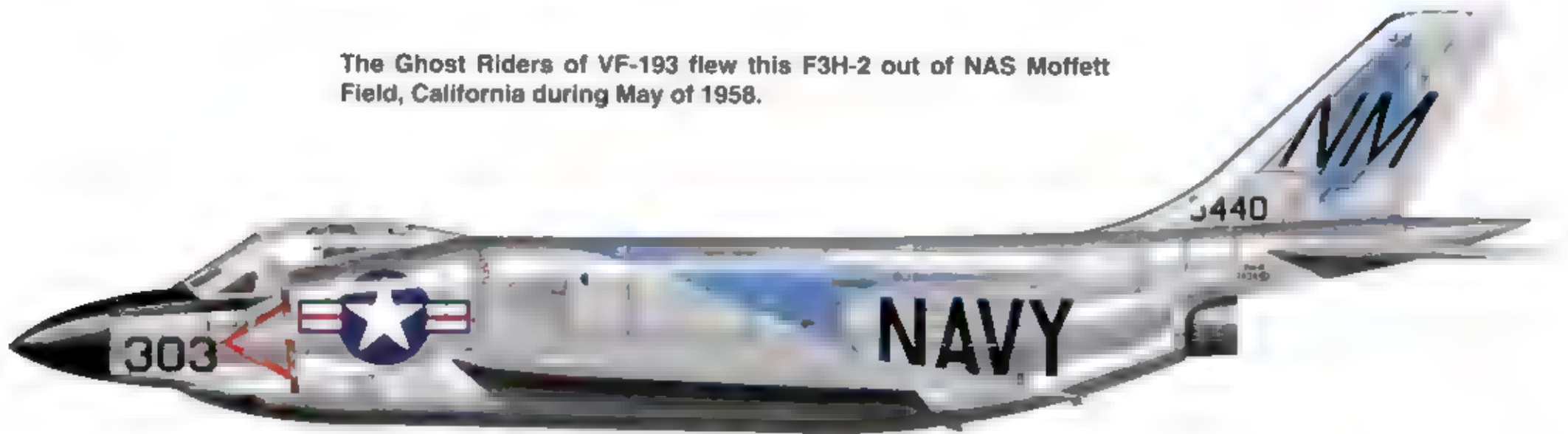
VF-112 operated this F3H-2M while aboard the USS TICONDEROGA (CVA-14) in October of 1958.



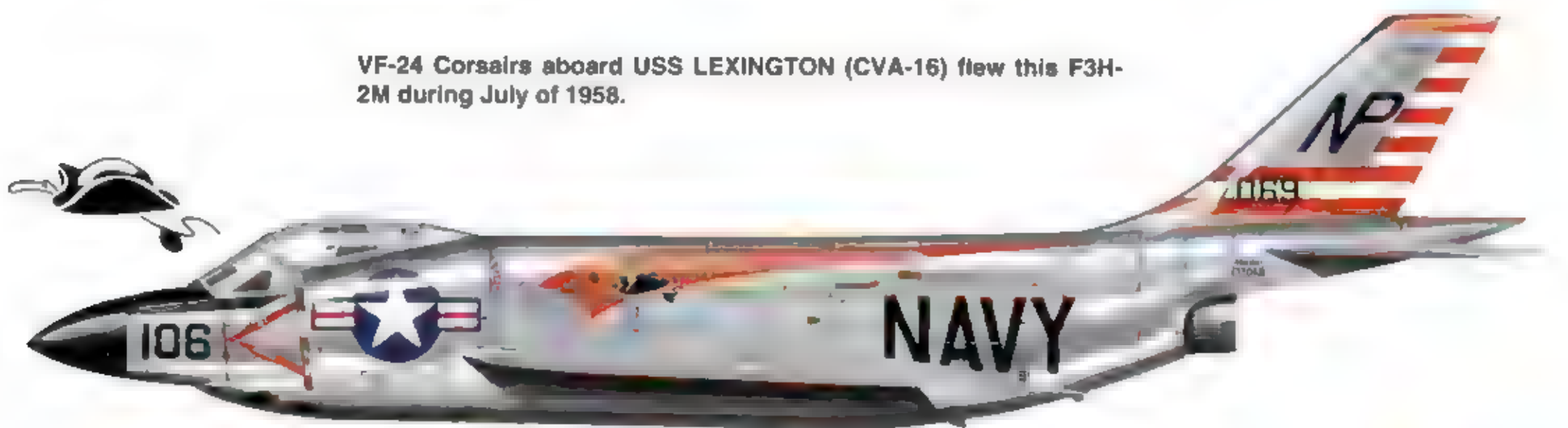
An F3H-2 assigned to VF-82 of Air Group Eight on USS FORESTALL (CVA-59) during January of 1958.



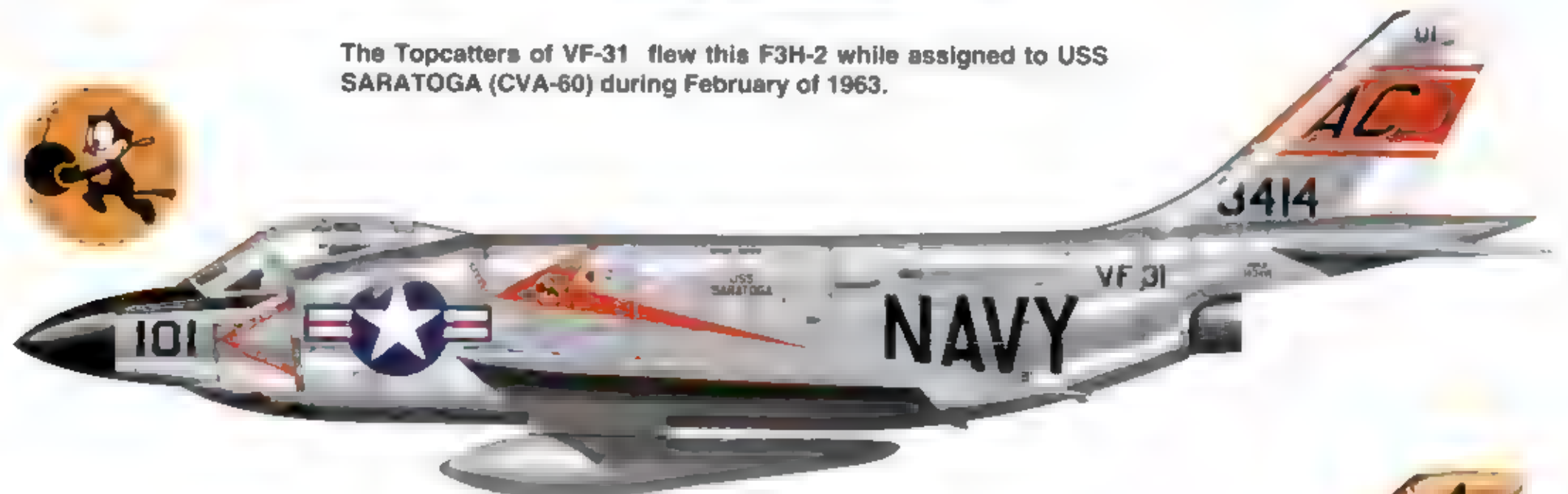
The Ghost Riders of VF-193 flew this F3H-2 out of NAS Moffett Field, California during May of 1958.



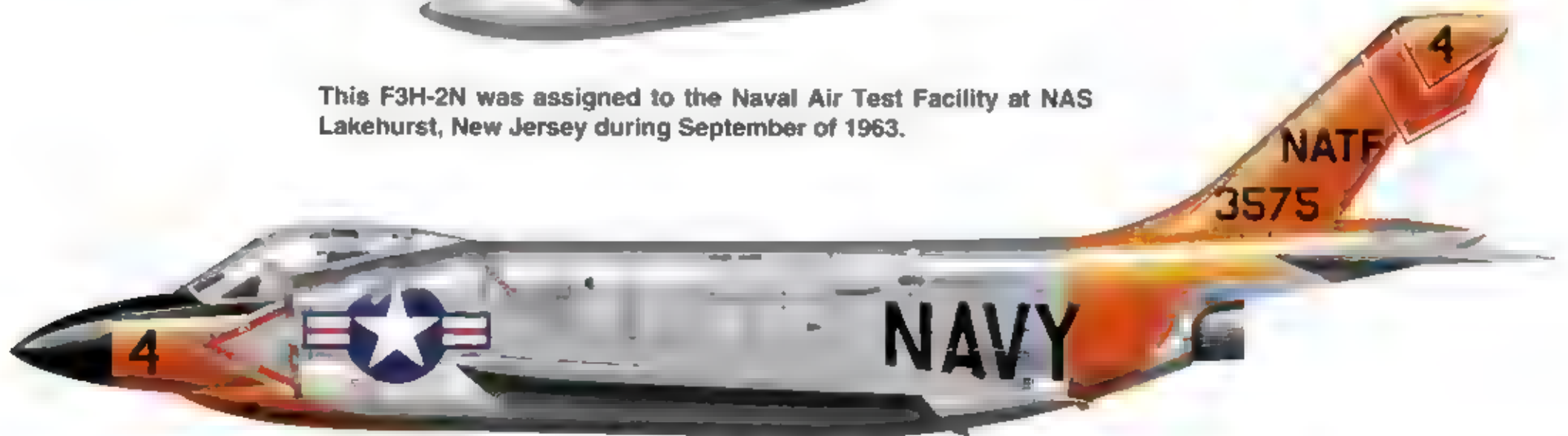
VF-24 Corsairs aboard USS LEXINGTON (CVA-16) flew this F3H-2M during July of 1958.



The Topcatters of VF-31 flew this F3H-2 while assigned to USS SARATOGA (CVA-60) during February of 1963.



This F3H-2N was assigned to the Naval Air Test Facility at NAS Lakehurst, New Jersey during September of 1963.



F3H-2

This variant of the Demon differed little from the F3H-2N and F3H-2M. Basically designed as a multi-purpose strike fighter, it retained the Sparrow and Sidewinder missile capabilities of the earlier models, but was normally equipped with six underwing pylons for carrying bombs and/or rocket pods. Additionally, the two fuselage pylons could also carry ordnance as well as their more usual fuel tanks. A wide variety of bombs, missiles and rocket pods could be carried.

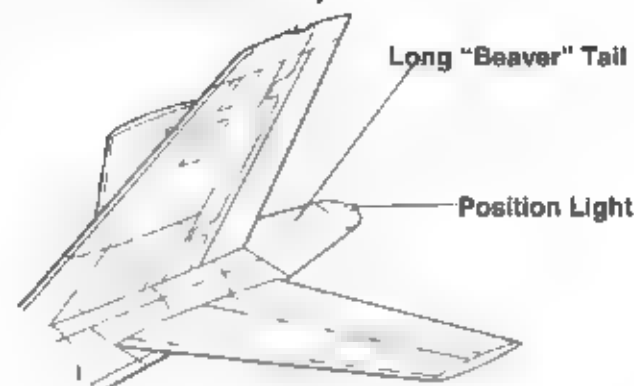
Approximately 6,000 pounds of stores could be carried although the range of the Demon dropped off dramatically under such a load. Some thought had been given early in the Demon program to fitting out Demons as tanker aircraft to accompany strike aircraft on long range missions. This never got beyond the test stage, but with the advent of in-flight refueling kits, the range problem was partially solved whenever the F3H-2 had to carry a full load.

Flight testing for the F3H-2 began in September of 1956, and few problems were encountered. It began to reach operational squadrons during 1957. After it went into service, numerous F3H-2Ns were modified to the F3H-2 configuration by various squadrons and shore facilities. During the 1962 redesignation program, the F3H-2 became the F-3B. The last Fleet Demon, an F-3B of VF-161, made its final flight in September of 1964, eight years after the type had been first flight tested.

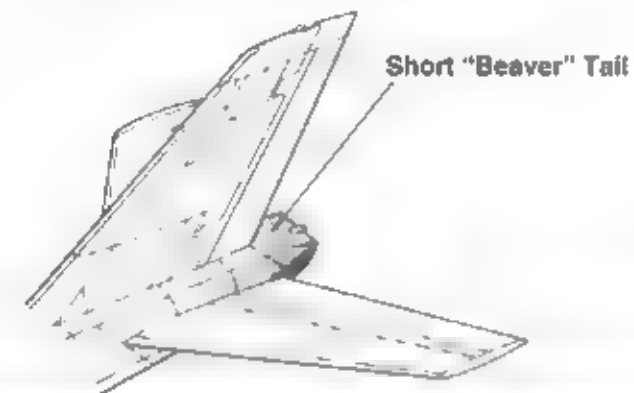
A line-up of F3H-2s outside the McDonnell plant at Lambert Field. This version of the Demon was designed as a strike fighter and as such incorporated all the features of the F3H-2N and F3H-2M variants along with the ability to carry additional ordnance on six underwing and two fuselage hardpoints. (McDonnell-Douglas)

Tail Cone Development

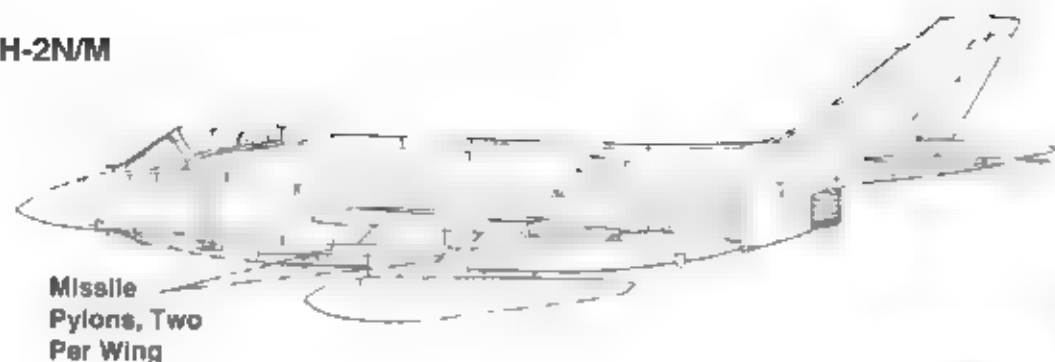
F3H-1N
F3H-2N/2M/2 (Early)



F3H-2N/2M/2 (Late)



F3H-2N/M



F3H-2



Pilot and ground crew check a F3H-2 prior to a flight during the Fleet Introduction Program (FIP) which began during late 1956 for the F3H-2 fighter-bomber/strike fighter variant of the Demon. The underwing pylons on this variant were much smaller in width than the missile pylons carried on the F3H-3N and F3H-2N. (McDonnell-Douglas)

There was little external difference between the various models of the Demon. This F3H-2 has four pylons for missiles instead of the six usually carried for the fighter-bomber mission. It is believed that all F3H-2s had the short "beaver" tail, but these were also retrofitted to the earlier versions so that only by looking at the Navy designation above the BuNo on the rear fuselage could the actual version be identified. (Kasulka via Sullivan)



Advanced Demon Design

As the basic F3H design was refined, McDonnell began work on an improved series of variants. These were based in general on the Demon, but with more powerful engines, sophisticated electronics and enhanced load carrying capabilities. Some of these designs never progressed beyond the conceptual state, while two, similar in general outline, progressed to the mock-up stage. These variations were broken down in the following manner:

F3H-C. This was basically an F3H-2 with a General Electric J67 engine and an increase in overall wing area. Anticipated performance and speed was to be superior to the F3H, particularly as the altitude increased. Top ceiling was expected to increase by approximately one mile.

F3H-B. Built around the J67 engine, this version featured a redesigned fuselage similar to the Grumman F11F, and a new wing. Its anticipated performance would have been much better at altitude than either the F2H-2N or F3H-C. In particular its rate of climb would be almost double that of the F3H-2.

F3H-G. Basically a new design, this model had two General Electric J65 engines. While performance was much improved over the F3H-2, it was similar in performance to the F3H-C but inferior in most cases to the F3H-L.

F3H-H. Similar to the -G Model, this version was to have been fitted with two General Electric J-79s which would have increased overall performance dramatically over all the other

proposals. The F3H-G/H proposals and mock-up showed a great deal of promise. The general design was to have served as the basis for a whole family of variants including a day interceptor, a day attack fighter, an all-weather interceptor, an all-weather attack fighter, an ECM platform and a two-place version which could be used for a multitude of missions. Each variant was to have carried different types of armament, missiles, electronics, and radar. Thought was given to making the noses interchangeable rather than produce complete aircraft for each mission requirement. Since the entire program never got beyond the mock-up stage, this never progressed beyond the planning stages.

In looking at the F3H-G/H design, however, one is struck by the similarities between it and McDonnell's next production aircraft, the F-4 Phantom II. In retrospect this is perhaps the greatest contribution the Demon made, for it served as the sure for one of the most important and prolific jets of the 1960s and 1970s. Undoubtedly, lessons learned from the Demon program were put to use in the design of the F-4 and it is probably safe to say that if it had not been for the F3H, the Phantom as it eventually evolved would have been much different, if indeed it even would have seen the light of day. It served as a bridge between the, straight-winged aircraft of the early years of jet propulsion and the modern, high-tech warplanes epitomized by the F-4, and its various successors. Although it never fulfilled the original high hopes which it was intended to have, it nevertheless gave a good account of itself during its lifetime and left behind a successor which still flies today, a legacy of which its designers can be proud.

The wooden mock-up of the F3H-G/H was put on display at the St. Louis facility during 1954. McDonnell hoped to use newer, more powerful engines to take the basic Demon design much farther than the original model was able to progress. A series of interchangeable noses, different armaments and electronics would give the new design far greater versatility (McDonnell-Douglas).





The F3H-G/H mock-up had a remarkable resemblance to the later F-4 series. If the wingtips were turned up and the tailplanes were angled down it would resemble a single seat Phantom. Eventually McDonnell did just that and added a second seat to produce one of the greatest aircraft of all time. (McDonnell-Douglas)

The original wooden mock-up of the XF4H Phantom was put on display during December of 1955. It bore a very strong family resemblance to the earlier F3H-G/H mockups and design studies, with the exception of the second seat and intake splitter plate (McDonnell-Douglas)



Into Service

Following flight tests and carrier qualifications the first F3H-2Ns began to reach fighter units when VF-14 Top Hatters, and other Atlantic coast fleet squadrons received their Demons during March of 1956. The first Pacific coast Demon fleet squadron VF-124 Moonshiners, received their F3H-2Ns shortly afterwards in May. VF-124 pilots were aided in this transition by VC-3, a composite training squadron which acquired their Demons in the early spring of 1956. By the end of the year, four additional fleet units, VF-31, VF-1, VF-82 and VF-112 had made the transition to the F3H-2N Demon.

During 1956 and early 1957 these and other units worked up to operational status with their Demons. In the Summer and Fall of the year VF-14, VF-124 and VF-122 made the first carrier deployments with the Demon, VF-14 going on a Med cruise aboard the USS FORRESTAL (CVA-59) while VF-124 and VF-122 made Westpac (Western Pacific) cruises on the USS LEXINGTON (CVA-16) and USS TICONDEROGA (CVA-14). VF-122 was one of the four new fleet squadrons, all Pacific, which re-equipped with the Demon during 1957 and a variety of operations were carried out during this initial deployment of the Demon. VF-61, the second Atlantic unit, took part in a interesting NATO ocean crossing exercise and made the first F3H landing on a foreign carrier, the British carrier HMS ARK ROYAL, during late Fall of 1957. The unit also became the first to deploy with the new Sparrow air-to-air missile and

The first Fleet unit to receive the Demon was VF-14 Top Hatters, an Atlantic Fleet squadron. The unit made its first deployment with the Demon aboard the USS FORRESTAL (CVA-59) during 1957. This F3H-2N is being positioned for launch on the starboard catapult while three early A3D Skywarriors sit along the port side in both Blue and Gray color schemes. (McDonnell-Douglas)

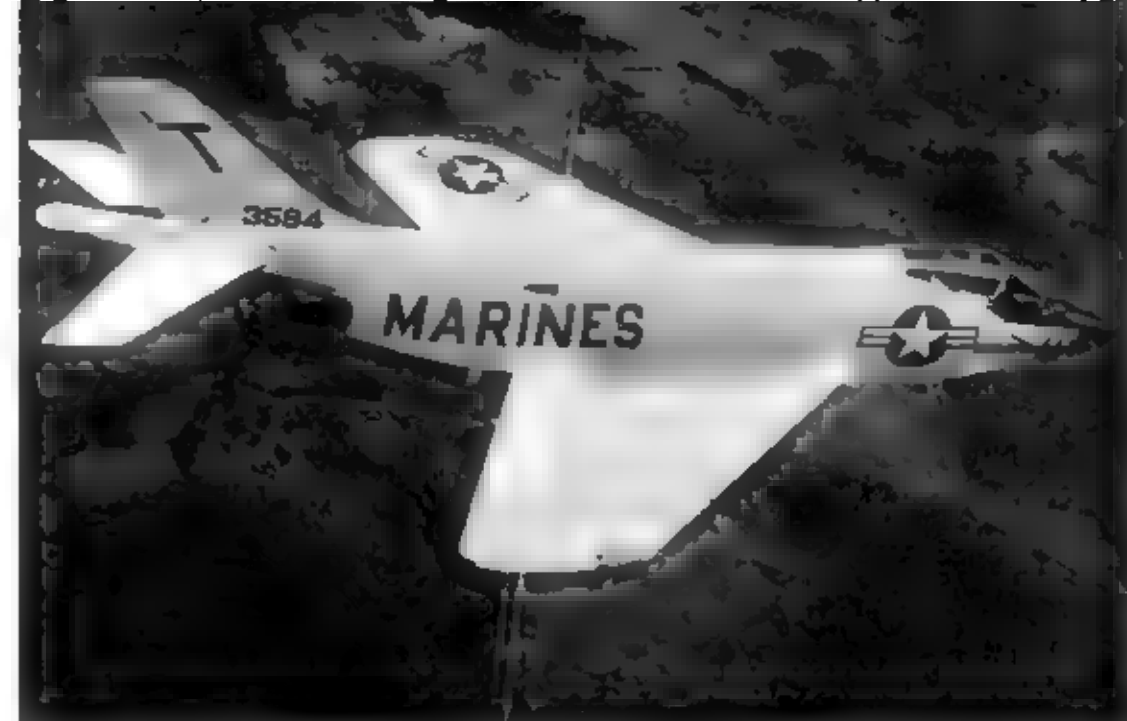
fire them at sea.

In 1958, seven squadrons were equipped with the Demon, two in the Atlantic, and four in the Pacific although one of the Pacific units had resulted from the merger of another Demon unit VF-124, to form the Pacific Fleet Replacement Air Group (RAG) VF-121. This year was to prove interesting in that the F3H received its first baptism of fire, so to speak, in both the Pacific and Mediterranean. In the early spring the Black Angels of VF-122 aboard USS TICONDEROGA (CVA-14) flew combat air patrols (CAP) in the South China Sea as tension between Communist and Nationalist China increased. Though no aerial action occurred, Red Chinese MiGs were sighted on a number of occasions and the unit took part in a strike against a ground target.

Half a world away, in the Mediterranean, VF-31 Demons from the USS SARATOGA (CVA-60) provided air cover for U.S. Marine and Army forces over Lebanon when American troops were requested by the Lebanese government to help it against internal unrest and outside pressure from the United Arab Republic (UAR), a union of Syria and Egypt. Additionally, a brutal revolt in Iraq which saw the murder of the monarch further pushed the Lebanese government to ask for foreign troops to safeguard its position. As Marines stormed ashore, Demons and other Navy jets flew cover as there were serious concerns that Syria might throw its MiGs and Russian tanks into the fluid political situation. The strong reaction by the U.S., Britain and France, however, proved to be a powerful deterrent and by early Fall the situation had stabilized. No aerial combat took place and although Syrian aircraft were spotted on radar, none were ever actually encountered.

During 1959, one new Atlantic squadron VF-41 Black Aces was formed but one of the early Atlantic Demon units, VF-61, was decommissioned. Despite being a new F3H squadron VF-41 took the coveted "topgun" trophy for being the best all weather fighter squadron during the annual weapons competition held at the Yuma Marine Corps Air Station (MCAS) late in





The Navy was the only service to place the Demon in squadron service although an attempt was made to portray the F3H in Marine Corps markings. This F3H-2N carries the tail code of VF-14 prior to its change-over to the two letter markings (AB) during 1957. No unit designation was carried on the fuselage. (McDonnell-Douglas)

that year. In the Pacific, four squadrons received the Demons, VF-92, VF-141, VF-151 and VF-213. All of these squadrons except VF-92 transitioned from the Douglas F4D Skyray while VF-92 traded in another McDonnell aircraft, the F2H Banshee, for its Demons. In November of that year the last F3H rolled off the McDonnell assembly line, the final production figures for all variants of the Demon being 519.

During 1960 and 1961 only two new Demon squadrons were added to the fleet, VF-161 (1960) and VF-13 (1961) both in the Atlantic. Two units, both Pacific, retired their F3H. One VF-112, was redesignated an attack unit and re-equipped with North American FJ Furies, while the other, VF-114, transitioned to the F-4B Phantom, the first Pacific squadron to do so. Another unit, VF-14, won the Battle "E" and Safety "S" award for the third year in a row, the only squadron to ever accomplish this.

By this time the Demon was beginning to show its age as newer aircraft such as the F-4 Phantom and F-8 Crusader came into the inventory. In 1962 in order to avoid confusion, various aircraft were redesignated under a new DOD designation system. For the Demon this meant that the F3H-2 became the F-3B, the F3H-2N became the F-3C, and the F3H-2M became the MF-3B. Another two squadrons turned in their Demons for Phantoms that year. Demon pilots of VF-13, VF-31 and VF-101 also took part in the Cuban Missile Crisis in the Fall of the year. As part of the sea blockade of Cuba, VF-13 and VF-31 flew off the USS LEXINGTON (CVS 16) and USS SARATOGA (CVA 60) as they monitored Russian ships moving toward Castro's Cuba. At NAS Key West, the Demons, as part of the U.S. Air Force's Air Defense Command, kept four aircraft on "hot" alert in case the Cubans tried to launch a surprise attack with their Russian MiGs or II-28 Beagles. This alert was mounted due to the uncertainty as to whether or not the II-28s were equipped with nuclear weapons and the tension during this time was understandably high. Fortunately, the crisis was solved peacefully through negotiations, but for a number of weeks the whole world watched with baited breath as the two superpowers stood on the brink of nuclear war.

A retouched photo of this VF-14 F3H-2N was used to show the Demon in Marine Corps markings, although that service never flew the Demon. Close scrutiny will show that the two aircraft are the same. (McDonnell-Douglas)

By 1963, only seven fleet squadrons were still equipped with the F3H, three in the Atlantic (VF-14, VF-31 and VF-13) and four in the Pacific (VF-54, VF-151, VF-161 and VF-213). By the end of the year four of these units had switched or were in the process of transitioning to the F-4, leaving only VF-13, VF-161 and VF-213 flying the Demon. The Demon's last "combat" sorties took place in November when pilots of VF-213 from the USS HANCOCK (CVA-19) provided air cover as American civilians were evacuated from Saigon, South Vietnam following a bloody coup against President Ngo Diem, the head of South Vietnam, which led to his execution. This was the swan song of the Demon's operational life. With the Phantom and Crusader now the Navy first line fighters, the F-3's days were numbered. In the Atlantic VF-13 traded in its Demons for Crusaders in early Summer while on the West coast, VF-161 and VF-213 transitioned to the F-4. The last Fleet Demon, (BuNo 145295), of VF-161 left NAS Miramar, California on 21 September 1964, ending nine years of fleet service for the Demon.

A few Demons were kept on for training and test purposes but within a few years these too were stricken from the records and placed in the Naval Air Facility at Littlefield Park to await disposal. No Demons were assigned to the Naval Reserves, and within a few years even the Demons at Littlefield were no more, victims of the scrap dealers.

In retrospect the general view of the Demon was that it was basically a failure, backed up by its short service life and high accident rate. These problems stemmed in large part due to the less than adequate power plant with which the F3H-2 variants were equipped. Despite this problem, the Demon was a rugged, stable platform with very good flying characteristics. Pilots felt so comfortable flying it that it was nicknamed the "Chair". Easy to land on a carrier, the Demon gave the Navy its first modern high performance, all weather fighter with advanced radar and long range missile capabilities. Once the bugs were worked out of it, the Demon proved to be a dependable aircraft which flew in all types of weather while other planes were kept below decks on carriers. Never destined to achieve greatness, the Demon left behind a legacy, in the very aircraft which eventually replaced it, the F-4 Phantom.



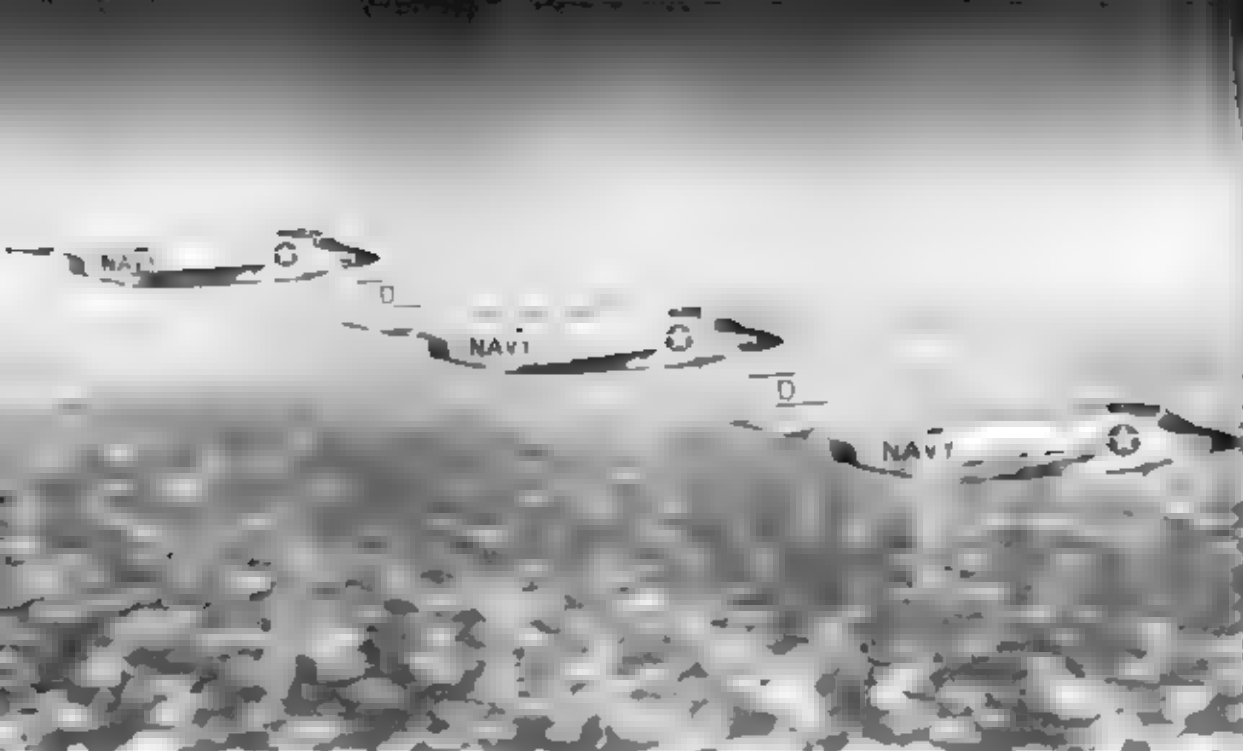
These F3H-2N Demons of VF-14 carry a variety of markings, some carry VF-14's complete markings (the last two) while the aircraft in the middle has only the tail code, and the aircraft in the foreground carries no distinguishing markings at all (McDonnell-Douglas)

F3H-2Ns of VF-14 prepare for launch from USS FORRESTAL (CVA-59). Eventually VF-14 added the unit's Top Hat insignia to the right side of the fuselage just under the cockpit. The insignia is visible on the F3H-2 in the foreground and the trim colors on the tail and wings was Red. (McDonnell-Douglas)



Later, VF-14 moved the Top Hat insignia back on the fuselage and placed it on a Red chevron. These F3H-2Ns have been fitted with refueling equipment and are armed with two Sidewinders in addition to their four cannon. (USN via McDonnell-Douglas)





Three F2H-2Ns of VF-124 on patrol over the Pacific during 1957. The Moonshiners were the first Pacific Fleet Demon unit and they received their first F3H-2Ns in May of 1956. Following nearly a year of training the unit deployed on the USS LEXINGTON (CV-16) for a Westpac cruise. (USN)

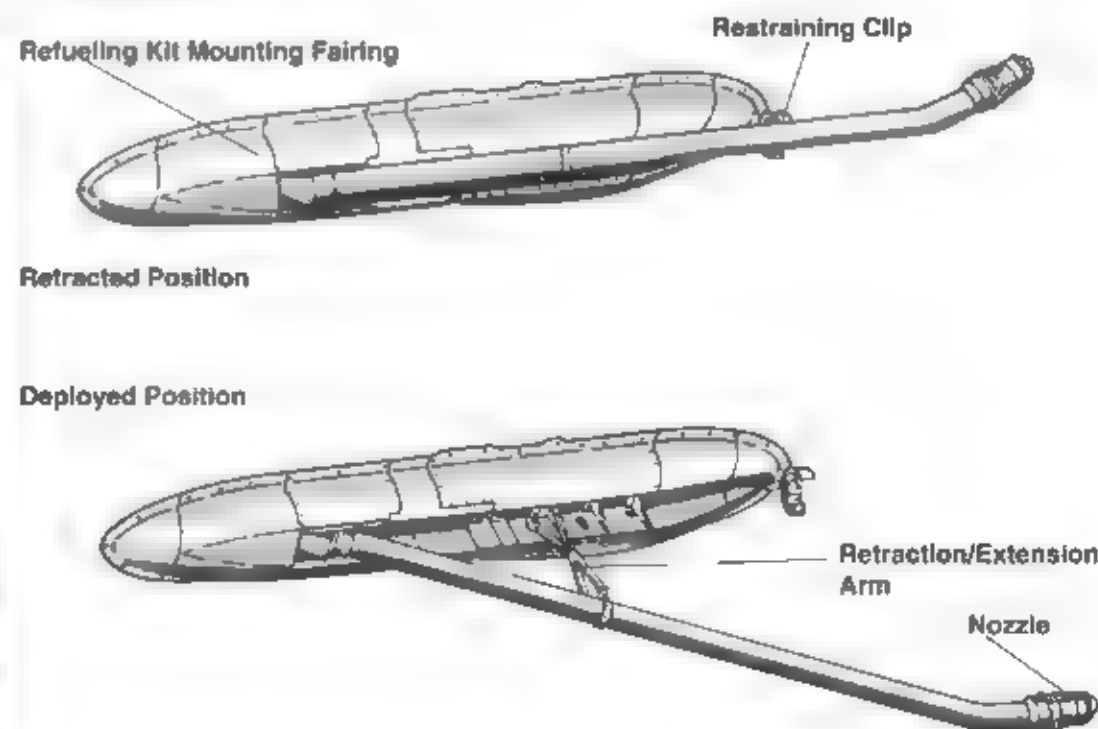
An F3H-2N of VF-124 takes on fuel from a North American AJ Savage of VAH-6. The Demon has been fitted with a bolt-on air-to-air refueling kit which would be used on any F3H-2 variant. Trim colors for VF-124 was a Yellow tail trimmed in Black and a Yellow, curved chevron on the fuselage with a thin Black outline. (USN/National Archives)



Four other units transitioned to the Demon during 1956 including the Tomcatters of VF-31 stationed at Naval Air Station (NAS) Cecil Field, Florida. This F3H-2 Demon carried Red trim and the unit's Felix the Cat insignia was carried in a small circle above the tail code on the fin. (McDonnell-Douglas)

Bolt-On Refueling Probe

All F3H-2 Variants



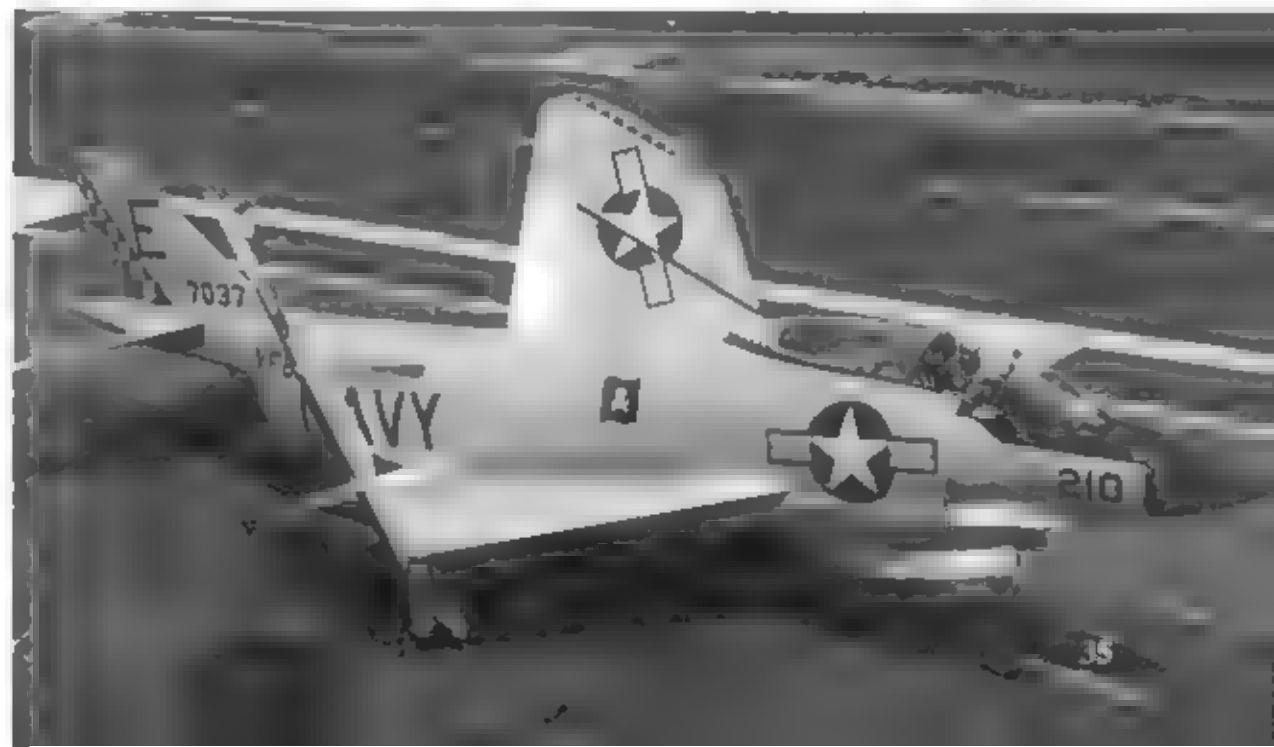


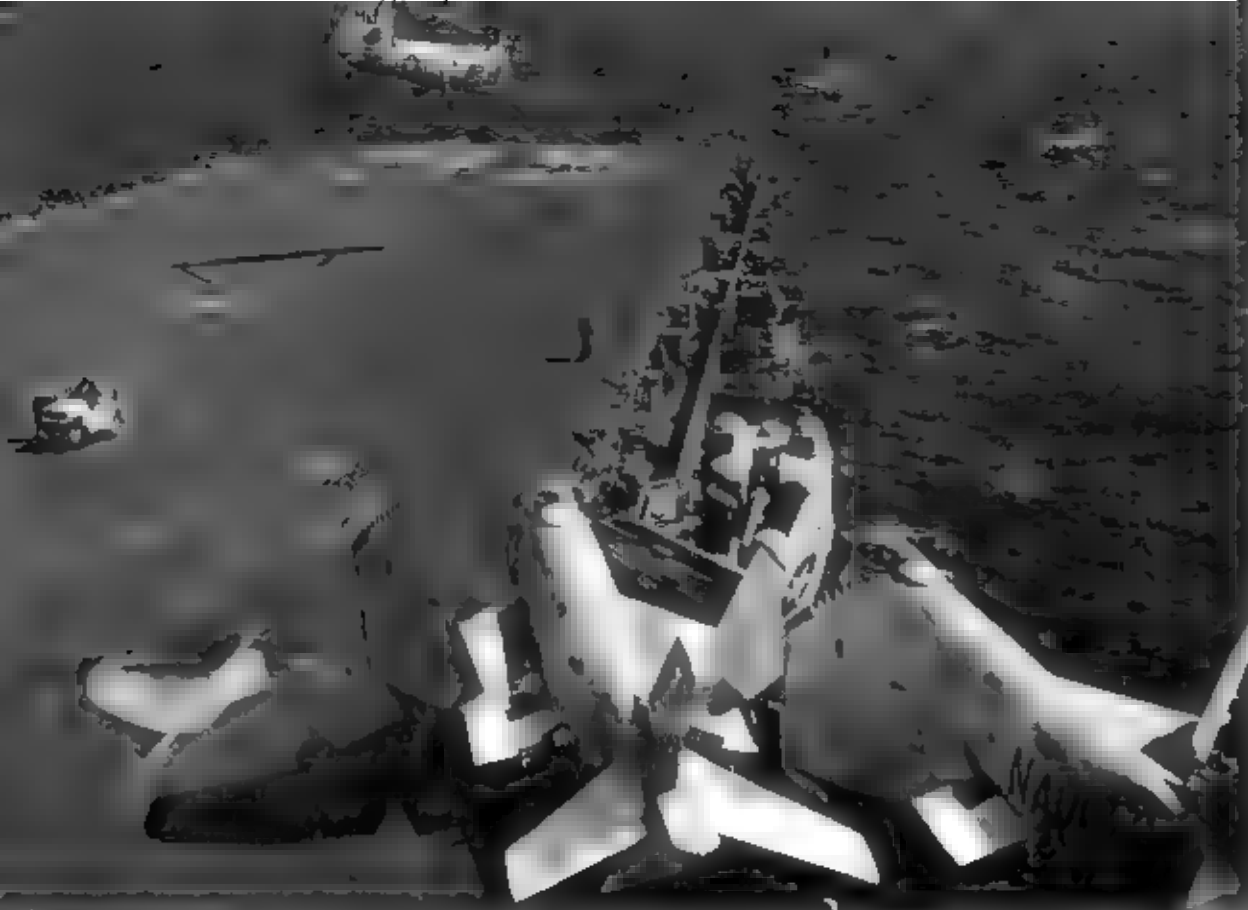
The Jolly Rogers of VF-61 received their F3H-2Ns in the Fall of 1956 and trained aboard the USS FRANKLIN D. ROOSEVELT (CV-42) for a short time in the Spring of 1957. This Demon has just engaged an arresting wire aboard the FDR. The aircraft in the foreground carries the Jolly Roger insignia on the side of the fuselage. (McDonnell-Douglas)

A group of F3H-2Ns of VF-61 share the aft flight deck of the FDR with another McDonnell product, the F2H-2P photo reconnaissance variant of the Banshee. The difference between the two aircraft, especially with the wings folded, is quite distinct. Considering that the Demon followed the F2H in such a short period, this difference is all the more remarkable. (McDonnell-Douglas)



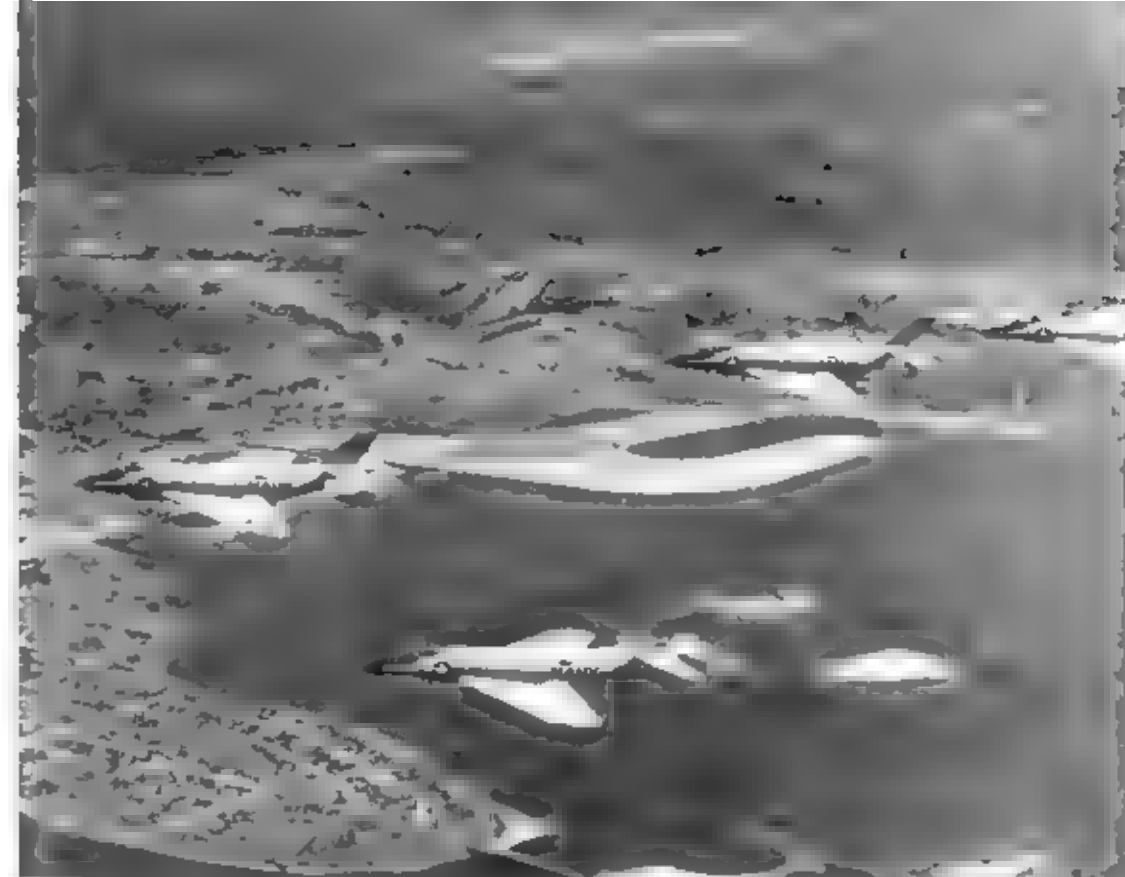
VF-61 Jolly Rogers began to add color to their aircraft and painted the upper wingtips Yellow with Black scallops, painted the rear of the canopy Yellow with Black trim and added Yellow squares on a Black background on the rudder. (McDonnell-Douglas)





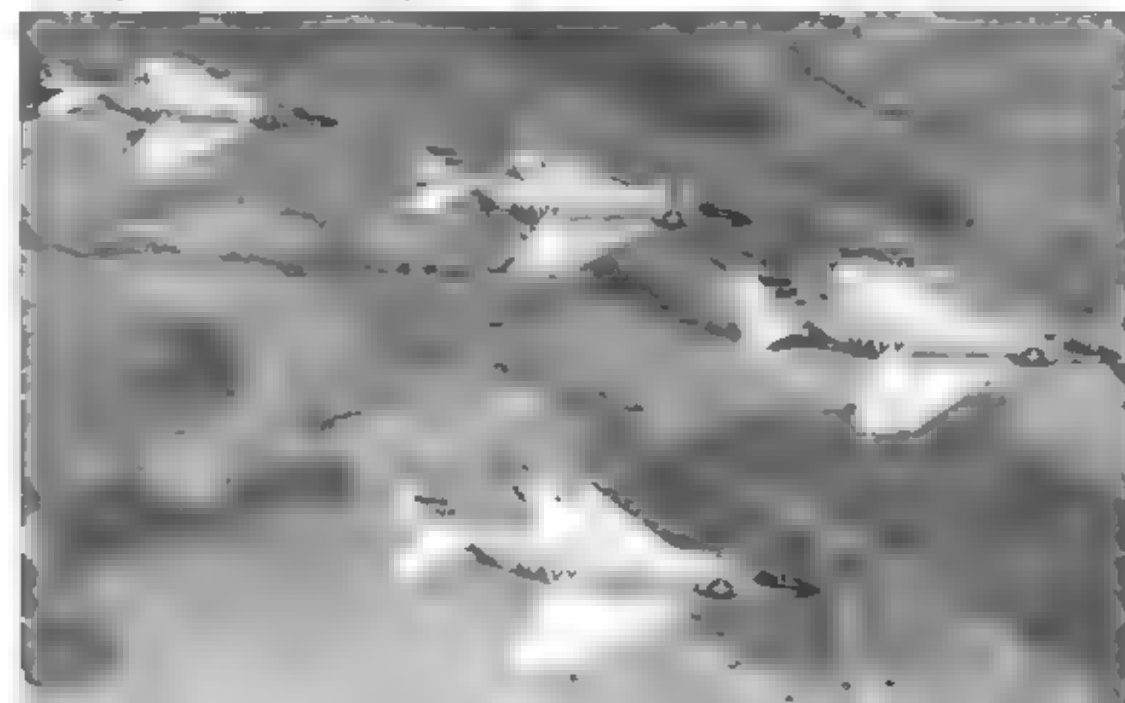
VF-82 was another unit which re-equipped with the Demon during 1956. These F3Hs prepare to move up to the catapult as a HUP-2 helicopter lifts off the deck of the USS FORRESTAL (CVA-59) to act as plane guard. The aircraft carry Red and White scallops on the wings and Red checkers on a White rudder (USN via McDonnell-Douglas)

Carrying both Sidewinder and early Sparrow I air-to-air missiles, along with 2.75 inch FFAR rocket pods, this Demon of VF-112 banks to port during armament testing operations near NAS Miramar in late 1965. This particular aircraft is a modified F3H-2M (McDonnell-Douglas)



To help train fleet pilots in the Demon, VC-3 acquired the F3H in the Summer of 1956 and began operations to help train other pilots in its operation. Four Demons of VC-3 fly in formation near the unit's home base of NAS Moffett Field, California. (McDonnell-Douglas)

Eventually VC-3 merged with VF(AW)-3 in July of 1965 and was based at NAS North Island across the bay from San Diego. The unit's markings changed little although the unit designation was placed on the tail under its tail code NP which was unusual for Demon units. VC-3 aircraft also carried a Blue band with White stars across the top of the fin. (USN/National Archives)





A pair of VF-61 Demons take off from the super carrier, the USS SARATOGA (CVA-60) during operations near Guantanamo Bay, Cuba in the Spring of 1957. One aircraft has launched from the bow catapult while the other has launched from the waist catapult. (McDonnell-Douglas)

Three F3H-2 Demons of VF-122 take part in the second Fleet Gunnery Meet at NAS El Centro, California in the Spring of 1957. They carry a variety of ordnance, including 2 75 inch rocket pods, 500 pound bombs and twenty-five pound practice bombs. (USN via McDonnell-Douglas)



VF-122 made a Westpac deployment on USS TICONDEROGA (CVA-14) in the Fall of 1957. Eventually they flew combat patrols off the coast of Communist China as tensions rose between the Nationalists on Formosa and the Communists on the mainland. A Demon is launched from the port catapult during operations in choppy seas. VF-122 aircraft carried a Black ball with an Orange nine inside it and Orange stripes with Black outlines coming off the circle. (USN/National Archives)





An F3H-2 of VF-122 catches the wire as it comes aboard USS TICONDEROGA following a combat air patrol during her cruise off China. Although Chinese MiGs were sighted there is no record of combat between either side. (USN/National Archives)

VX-4 figured prominently in the development of the Sparrow missile system. This F3H-2 was parked aboard the USS MIDWAY (CVA-41) in late 1957 while testing the Sparrow III. The top of the fin is Blue with a Red border at the bottom and White stars inside the band. (McDonnell-Douglas)



VF-61 became the first Demon unit to land on a foreign carrier when the unit took part in NATO operations. This Jolly Roger pilot comes in for a landing aboard HMS ARK ROYAL as British deck crewmen look on. (USN via McDonnell-Douglas)

While Fleet units were transitioning to the Demon other units were also making use of the big aircraft. Pilots from VX-3 pose with one of their aircraft during June of 1958 while the unit was conducting tests with the F3H. (USN/National Archives)





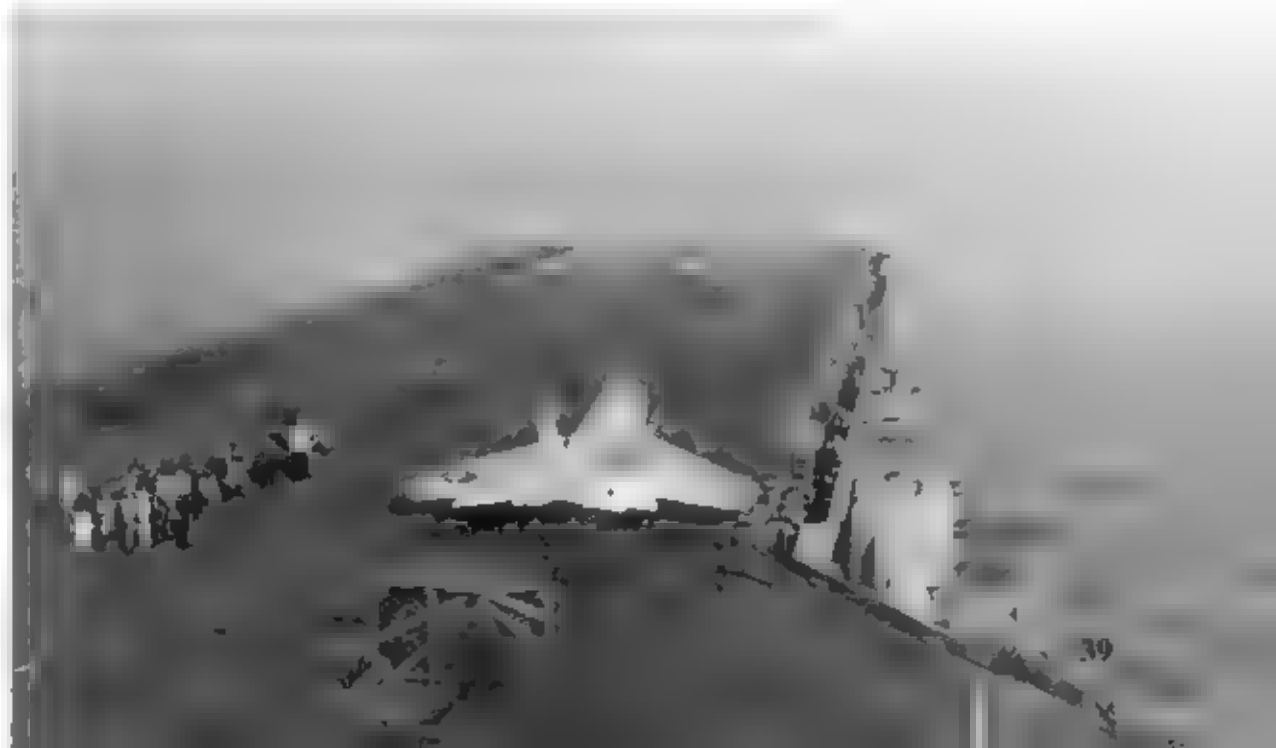
This F3H-2 of VF-61 Demon was spotted forward on the flight deck of HMS ARK ROYAL during cross-deck operation. The F3H was far more advanced than the current British Navy aircraft which were employed by the Fleet Air Arm aboard the ARK ROYAL. (USN via McDonnell-Douglas)

This unusually marked Demon was assigned to the Naval Air Ordnance Test Center (NAOTS) in the Fall of 1957 to test various types of ordnance for use on the F3H. The body was Navy Blue while the tail surfaces and outer wing panels were in White. (McDonnell-Douglas)



An F3H-2M fires a Sparrow III air-to-air missile during testing of the missile system. The aircraft was assigned to the Naval Missile Test Center at Point Mugu, California which carried out a wide variety of missile work with a number of different aircraft. (McDonnell-Douglas)

The Naval Air Test Center at Pax River, Maryland played an important part in the early career of the Demon. The pilot of this F3H prepares for a take off during the USS FORRESTAL work-up period. The F3H-2N was tested aboard the FORRESTAL in the Spring of 1956. (USN via McDonnell-Douglas)





This F3H-2N Demon has been fitted with a towed aerial target on the port wing for gunnery tests at the Naval Air Test Center facility at Patuxent River, Maryland. Usually, NATC is referred to by its nickname – Pax River. (McDonnell-Douglas)

During a high speed turn the port landing gear of this F3H-2 extended unexpectedly, resulting in damage to the struts and braces. This made it necessary for the pilot to make a barrier landing. LT Ron Richeter approaches the net which has been raised on the USS INDEPENDENCE (CVA-62) during its 1960 Med cruise. (USN via Tvede)



The Demon has just engaged the barrier which was designed to wrap around the aircraft in order to slow down and stop aircraft under emergency conditions. The aircraft was from VF-41. (USN via Tvede)

A shaken but otherwise unhurt pilot exits from his aircraft as ground crewmen and firefighters secure the scene. The F3H-2N Demon was only slightly damaged and was eventually repaired and returned to service. (USN via Tvede)





An F3H-2N of VF-31 is respotted on the flight deck of USS SARATOGA (CVA-60) during one of the five cruises the unit made with the carrier. One of these deployments was the 1958 Lebanon Intervention, where Demons flew combat air patrols against Syrian MIGs (although none were visually sighted). The fuselage and tail stripe are in Red and the aircraft carries a Battle E award on the nose under the intake warning stripe. The aircraft in the background include Douglas A-4B Skyhawks and an HUP-2 helicopter. (Sullivan)

An F3H-2N of VF-141 Iron Angels taxis forward after landing on the USS ORISKANY (CVA-34) in the Fall of 1959. The aircraft carries rather plain markings and little if any color. Later in its career the NK would be slanted and the fin tip would be painted Red. (USN via McDonnell-Douglas)





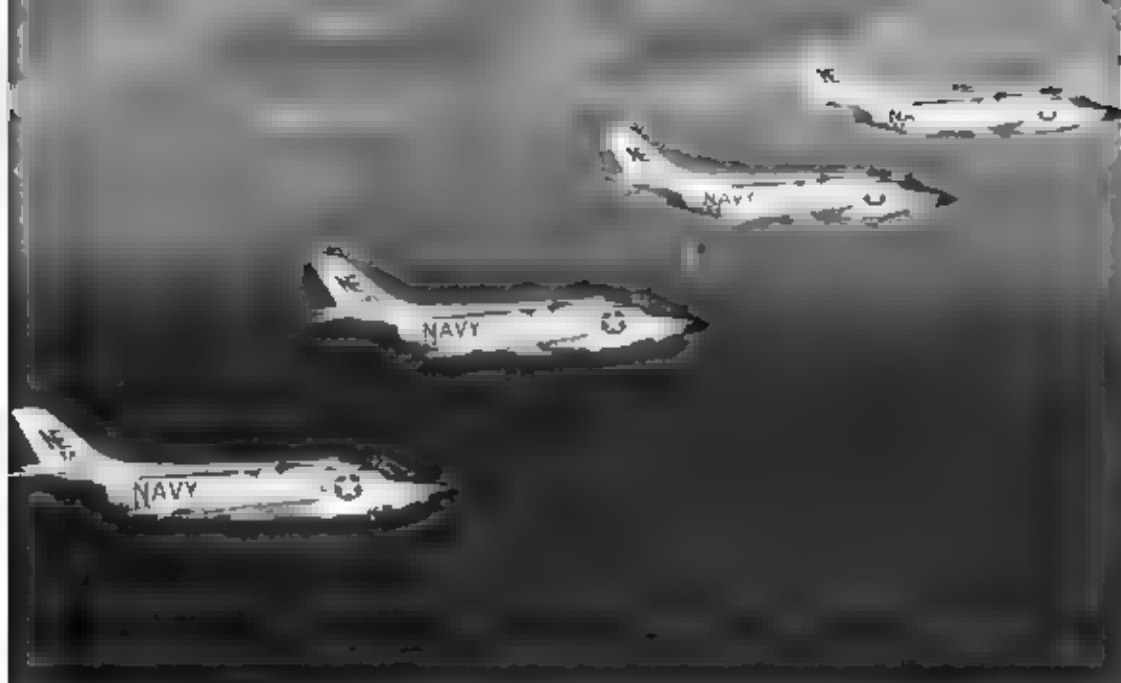
The tail of this VF-31 Demon frames the USS ESSEX CVA-9 during a Med cruise. The Felix The Cat insignia on the fin is on an Orange ball trimmed in Black. This F3H-2N has the early style long tail cone, often referred to as the Beaver tail (McDonnell-Douglas)



A VF-64 Demon in the unit markings carried when assigned to CVG-2 takes off from the USS MIDWAY (CVA-42). The nose gear has compressed under the strain of the catapult bridle holding it down. The Lion on the fuselage was either Black or Dark Blue. (McDonnell-Douglas)

The Top Hatters of VF-14 added more flashy markings to their F3H-2M Demons following their introduction into Fleet service. These markings included new tail codes and a scroll with the squadron motto below them. This particular aircraft has had two of its cannon removed and carries two Sidewinder missiles on the outboard pylons. The inner missile pylon is configured with a Sparrow III missile rail which is shorter than the Sidewinder rail (USN via McDonnell-Douglas)





More elaborate fuselage marking were applied by VF-64 during 1959 with a Black streak on the fuselage and the full unit insignia being carried in an Yellow-Orange circle facing toward the front. The tail stripes were Yellow and White. (McDonnell-Douglas)

An F3H-2 Demon sits on display during an air show in California. VF-92 flew from the USS RANGER, USS LEXINGTON and TICONDEROGA. While on the LEX the unit was redesignated VF-54 but reverted back to VF-92 for their Westpac cruise on the TICONDEROGA. The aircraft in the background include a Blue Angels F11F Tiger and C-118. (Kasulka via Sullivan)



A Demon from VF-114 Aardvarks comes to a stop after catching a wire on USS SHANGRI-LA during the Fall of 1958. This aircraft was an F3H-2N. The Aardvarks were one of the first squadrons to convert to the F-4B Phantom. (Grajek via Squadron Archives)





A F3H-2 takes on fuel from a North American AJ-2 Savage of Detachment Alpha, VAH-16 during operations from USS MIDWAY. The VF-84 Demon carries a mixed load of Sidewinders on the inboard pylons and Sparrows on the outboard pylons. The aircraft also retains its full cannon armament. (USN via McDonnell-Douglas)



A group of Demons from VF-114 Aardvarks spotted on the aft deck of USS SHANGRI-LA during a Westpac cruise. The tail fin and marking on the fuselage are in Orange. Later VF-114 would become the first Pacific unit to convert to the Phantom (Grajek via Squadron Archives)

Armed with Sidewinders on the inboard pylons and equipped with bolt-on refueling kits, a flight of F3H-2N Demons of VF-14 Top Hatters fly patrol over a destroyer while operating off USS MIDWAY (CVA-42) during 1957. (USN via Cresman)





Deck hands watch as a Demon from VF-82 comes to a sudden stop after catching the arresting wire. Such landings required Naval aircraft to be sturdier than their landbased counterparts which penalized them in performance due to their higher overall weight. The tail colors were Red and White. (USN via McDonnell-Douglas)



An F8U-2P reconnaissance pilot photographed this F3H-2N Demon of VF-41 while flying over a cloudy Mediterranean Sea in the late Fall of 1960. The fuselage band was in Red while the rudder was Red with White stripes and the top of the fin was also Red. (USN via Tvede)

Deck hands run to release the tail hook of a VF-14 Demon after it comes to a complete halt after a successful landing on USS F. D. ROOSEVELT while the ship was deployed with the Sixth Fleet. The aircraft is armed with two Sparrow missiles and its internal cannon. (USN via Cressman)





Late in its service life the Demon along with all other Navy aircraft were redesignated to bring them into alignment with the other services. The Defense Department redesignation system changed the designation of the F3H-2 to F-3B. This F-3B was assigned to the Naval Missile Center at point Mugu, California and carries four Sparrow III missiles on the underwing pylons. (Kasulka via Sullivan)



(Left) A flight of four F3H-2M (MF-3B) Demons of VF-112 fly over the rugged California countryside near their home base at Naval Air Station Miramar, near San Diego. The dark stains in front of the unit's number is from the cooling air exhaust vent. When the unit turned in their F3Hs they were redesignated an attack (VA) squadron and re-equipped with the North American FJ-4B Fury fighter-bomber. (McDonnell-Douglas)



Two Demons from VF-64 Freelancers fly patrol over Japan during one of the squadron's Westpac deployments. VF-64 deployed to the Far East aboard USS MIDWAY (CVA-42) on three separate occasions as part of CVW-2 and during the latter cruises was redesignated as VF-21. (USN via McDonnell-Douglas)

One of the last Demon squadrons to be formed was VF-131 which was commissioned to serve on the super carrier USS CONSTELLATION (CVA-64) in the Summer of 1961. Following their work-up period at sea, the squadron then disembarked for duty at NAS Cecil Field, Florida while the CONSTELLATION was transferred to the Pacific Fleet. The unit was decommissioned in the Fall of 1962. (McDonnell-Douglas)





Grandfather, father and son, the three main fighter designs from the McDonnell factory, the Banshee, Demon and Phantom fly formation over the greater St. Louis area during early 1959. Each aircraft broke new ground and the experience McDonnell gained on the F2H and F3H was translated into the superb F4 series. Had McDonnell not produced the Demon the history of the Phantom would have been far different. (McDonnell-Douglas)

Demons from VF-161 off the USS ORISKANY (CVA-34) share the ramp at Naval Air Station Miramar, California with McDonnell F-4B Phantoms off USS CONSTELLATION (CVA-64) during 1963. The tail tip and fuselage flash markings were in Red. The aircraft carries Sidewinder missile rails on the inboard pylons and Sparrow missile rails on the outboard pylons. (Gann via Doll)



The West Coast unit responsible for Fleet indoctrination of pilots and support personnel was VF-121 Pacemakers. Demons assigned to the unit had a Red nose, tail, and tail plane outer tips. (JEM Aviation)





The last Demon in Fleet service, an F-3B of VF-161 aboard USS ORISKANY, was officially retired with full military honors, from active duty on 21 September 1964 at Naval Air Station Miramar, California. The commander of the unit, CDR Wayne Welty, made the last flight, ferrying the aircraft to Litchfield Park. The unit replaced its Demons with F-4B Phantoms. (USN via Dorr)

At this time it is believed there are only two F3H Demons preserved, one on the USS INTREPID Air-Sea-Space Museum in New York, and the other is on display at the Pima County Air Museum in Arizona, painted in the markings of VF-13 aboard USS SHANGRI-LA.





This F3H-2 of VF-64 aboard USS MIDWAY (CVA-41) during the Spring of 1958 carries the Black Lion squadron marking on the fuselage in Black.



An F-3B Demon of VF-13 climbs out from USS SHANGRI-LA (CVA-38) in full afterburner.

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